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WAITING IT OUT

Forget the New Year's Eve party!
Many Y2K professionals
want to be at the office
at midnight to see how
their efforts turn out.
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AFTER THE WALL

Ten years after the collapse of the Berlin Wall, IT in Central Europe is catching up to the ways of the West. Page 42



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NOVEMBER 8, 1999

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THESE
IMPLEMENTATIONS
ARE LIKE DOING
OPEN-HEART
SURGERY.
WHAT HERSHEY
TRIED TO DO —
NOW YOU'RE
TALKING HEART,
LIVER AND LUNG
TRANSPLANT.

CHRIS SELLANO, AN ANALYST AT
THE YANKEE GROUP IN BOSTON,
ON WHY HERSHEY HIT SNAGS
AFTER SQUEEZING A FOUR-YEAR
SAP IMPLEMENTATION INTO 30 MONTHS.
SEE PAGE 1.

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Judge Slams Microsoft in Findings

Intel-compatible PC operating systems" that it could charge what it wants "for a significant period of time without losing an unacceptable amount of business to competitors. In other words, Microsoft enjoys monopoly power in the relevant market."

In Review

Highlights of the Microsoft antitrust issue:

1993

- Department of Justice starts investigation of Microsoft for anti-competitive practices

1994

- DOJ, Microsoft sign consent decree outlawing restrictive licensing with PC makers

1995

- February: Federal court throws out consent decree
- June: Appellate court overturns federal ruling
- August: Judge Thomas Penfield Jackson approves consent decree

1996

- DOJ investigates Microsoft for allegations of consent decree violations

1997

- October: DOJ asks for \$1M daily fine to be levied against Microsoft for violating consent decree by bundling Internet Explorer with Windows 95

- December: Jackson issues preliminary injunction against Microsoft to unbundle browser

1998

- January: Microsoft signs agreement allowing licensees to install Windows 95 without Internet Explorer on the desktop
- May: Appellate court rules that injunction doesn't apply to Windows 98, DOJ and 20 states sue Microsoft with antitrust suit
- June: Appellate court overturns Windows 95 preliminary injunction
- October: After several post-judgments, trial begins

1999

- September: Closing arguments presented in Jackson
- November: Jackson issues "findings of fact" in case

Jackson also attacked Microsoft's bedrock contention that the integration of its Internet Explorer browser with the Windows operating system produced consumer benefit. The judge said "no consumer benefit can be ascribed to Microsoft's refusal to offer a version of Windows 95 or Windows 98 without Internet Explorer."

The judge's findings weren't his verdict—that's not expected until the end of this year or early next. But with this opinion, which is the judge's assessment of the facts in this case, there seems little reason to doubt that Jackson's final verdict will weigh heavily against Microsoft. Attention will now shift to remedies and the possibility that Microsoft may seek a settlement.

Microsoft officials conceded that the judge's ruling, in an appeal against them, but company CEO and Chairman Bill Gates remained adamant that the company would continue to fight the charges.

"The lawsuit is fundamentally about one question: Can a successful American company continue to improve its products for the benefit of American consumers? That is precisely what Microsoft did," said Gates.

A Year's Work

The judge's opinion follows a nearly yearlong trial with 76 days of testimony over allegations by 19 states and the federal government that Microsoft used its monopoly power illegally to squash competition, impede innovation and dominate this industry.

"In my wildest imagination, I never imagined Microsoft would lose this big," said Rich Gray, an antitrust lawyer in Silicon Valley. "Judge Jackson bought into just about every argument the government made," Gray said.

U.S. Justice Department Antitrust Division Chief Joel Klein declared victory. "It shows once again in America that no person and no company is above the law," he said.

As evidence of the firm's monopoly power, Jackson cited the experiences of IBM in introducing the OS/2 Warp operating system and of Apple Computer Inc.'s difficulties to "compete effectively" with Microsoft.

The judge also completely dismissed Microsoft's repeated courtroom claims and a key part of its defense that the Linux operating system can compete against Windows.

Users "have by and large shown little inclination to abandon Windows with its reliable developer support, in favor of an operating system whose future in the PC realm is unclear," he wrote.

"Microsoft has taken it hard on the chin. The judge has ruled uniformly and definitively against Microsoft on every single material fact," said Hillard Sterling, an attorney at Gordon & Glickson PC in Chicago. "Obviously, Judge Jackson is expecting to have this decision appealed. His findings of fact are aimed at bolstering the survival of his ruling."

Donald Stroud, MIS director at Plain Dealer Publishing Co. in Cleveland, said he believes the

next step for Jackson is to break up Microsoft.

"A breakup is needed," said Stroud. "We have already proved that Microsoft won't necessarily hold to any deal and be a nice kid; they are going to be a bully." But a breakup, especially if the company is divided along consumer, business and application lines, could prompt a lot of companies to scramble to compete, he said.

But John King, CIO at Filene's Basement Corp. in Wellesley, Mass., said that Microsoft will be able to stay off any remedies for months or years with appeals and that even when the government has broken up companies, it's questionable how much good that can do.

"Microsoft is going to continue to develop its product line," said King. "I'm not going to make any major changes at this point."

"I don't see this as affecting Microsoft's business," said David Folger, an analyst at Meta

Group Inc. in Stamford, Conn. "Some end users care about Microsoft's dominance, but that concern is much stronger among vendors. The end users don't say much about it. Microsoft doesn't service that badly its end users. Microsoft is very nasty and aggressive regarding its competitors."

Second Phase to Come

The 207-page document is the first phase of a two-part ruling by Jackson. In it, the judge reviews the facts of the case. The next part of his verdict, his "conclusions of law," is expected either late this year or early next.

If Microsoft is found guilty, the court must decide how to return competition to the PC operating systems market. The remedy phase of the trial will likely be its most complex and difficult.

The sentiment among the states has been to break the company up—possibly separate its operating systems from its applications. If Word and Excel were available for Linux or be Inc.'s operating systems, the argument goes, then those operating systems would become true competitors.

A regulatory remedy is also possible. The judge could require Microsoft to charge a single price for its operating system to all vendors.

Investors aren't likely to panic over Jackson's ruling.

"Most people think there will be more wealth if they break [Microsoft] apart than if they leave it alone," said Jedd Dumas, an analyst at Bear Stearns & Co. in San Francisco.

"This is no surprise to anyone who has been watching the industry for the last decade," said Eric Raymond, a leading advocate of open-source software and president of the

Open Source Initiative in Malvern, Pa. But regardless of government intervention, he said, the market and free software are already heralding the end of Microsoft's grip on power in the industry.

Jackson gave plenty of clues before Friday night about how he might decide this case.

Testimony of Microsoft's witnesses often prompted Jackson to shake his head, roll his eyes and scowl. The judge laughed out loud during evasive and rambling answers offered by Gates to questions posed by government attorneys in his videotaped deposition.

But what hurt Microsoft the most, as noted in the judge's findings, were the mountains of Microsoft e-mails that the government introduced into court. These messages, which included brutally frank statements about company goals and tactics—such as, "How do we wrest control of Java away from Sun?"—were used by the government to challenge Microsoft's witnesses.

In his conclusion, Jackson said, "Most harmful of all is the message that Microsoft's actions have conveyed to every enterprise with the potential to innovate in the computer industry. Through its conduct toward Netscape, IBM, Compaq, Intel and others, Microsoft has demonstrated that it will use its prodigious market power and immense profits to harm any firm that insists on pursuing initiatives that could intensify competition against one of Microsoft's core products." ■

MOREONLINE

For historical coverage from Computerworld of Microsoft's antitrust trials, related resources on the case, and a link to the DOJ's Findings of Fact page, where the judge's findings will be posted, visit our Web site: www.computerworld.com/news

Microsoft Loses Round in Caldera Suit

The judge in Caldera Inc.'s 3-year-old antitrust lawsuit against Microsoft Corp. last week ruled against Microsoft on four of its nine motions to have the case decided without a trial.

Microsoft filed a request for summary judgment in February, contending that there was no evidence to support several of Caldera's claims, including that Microsoft illegally tied Windows 95 to the MS-DOS operating system and that Microsoft creat-

ed artificial incompatibilities between Windows and Caldera's version of DOS.

But U.S. District Court Judge Dave Benson in Salt Lake City said that Prolog, Utah-based Caldera has presented enough evidence that these and other questions must be answered via a trial. In June, Benson ruled that Microsoft can't sue to remove the case. The trial is scheduled to start Jan. 17.

—Kim S. Nash



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ERP Mix a Challenge in Drug Merger

American Home, Warner-Lambert share
SAP; deal's size means big integration job

BY CRAIG STEEDMAN

AMERICAN HOME Products Corp. and Warner-Lambert Co. — two pharmaceutical heavyweights that announced a \$72 billion merger deal last week — are both big users of SAP R/3. But combining their systems is expected to be a steep challenge nonetheless.

The size of the two companies, with combined revenue of \$26 billion, is enough to make any systems integration project daunting. But other business and technology issues will likely make the job even more complicated — assuming the deal doesn't fall apart because of a hostile bid New York-based Pfizer Inc. made for Warner-Lambert later in the week.

For one thing, SAP AG isn't the only enterprise resource planning (ERP) vendor on the scene. American Home Products runs a mix of R/3 and ERP applications I.D. Edwards & Co. in Denver.

The two companies also

have very different management styles that extend to the systems level, sources said. Warner-Lambert, in Morris Plains, N.J., is a centralized organization with relatively consistent systems, while Madison, N.J.-based American Home Products operates as a holding company and has a wider range of application releases and configurations.

Not impossible

Tying it all together isn't impossible, said Stephen Cole, an analyst at Forrester Research Inc. in Cambridge, Mass. But it's akin to "turning two ocean liners that are going in different directions," he added. "That's going to take some serious effort and time."

Officials at the two companies, which will be renamed AmericanWarner Inc. if the deal goes through, wouldn't comment on their plans for blending the different systems.

"It would be premature for me or anyone to have any conversations about our technology environment," said Bruce

Faden, CIO at American Home Products. The system plans may be more settled within 30 days, he added.

Calls to Demetrios Lappas, Warner-Lambert's CIO, were referred to a corporate spokeswoman, who said it's "far, far too early" to discuss the technology implications.

Consolidations of ERP systems on such a large scale usually take years, said Jim Shep-

herd, an analyst at AMR Research Inc. in Boston. "It's not much different than doing a new implementation."

Even in cases where there's a common underpinning such as R/3, there are usually big differences in the way the software and business processes are set up, Shepherd said.

Another potential complicating factor for AmericanWarner is the merger-of-

equals structure of the deal. The combined company will be based in Madison, but its board of directors will be split equally between the companies. The chairman will initially come from American Home Products, while the CEO will be from Warner-Lambert.

In most acquisitions, the buyer dictates business and technology strategies. "But in megamergers like this, it's nev-

\$60M Reporting Error at Chase Wasn't Tech-Based

Event shows limits
of Wall St. systems

BY THOMAS HOFFMAN

BETTER RISK-MANAGEMENT systems probably couldn't have caught a recent trade miscalculation at The Chase Manhattan Corp., analysts said. But the glitch, which is costing the New York bank \$60 million in fourth-quarter profits, highlights the inability of Wall Street firms to monitor their

financial exposure on the fly.

Last week, Chase revealed that one of its foreign-exchange traders had overstated his profits for derivatives trades he made earlier this year. The bank's risk-management systems were able to identify the imbalance in trading positions and "prevent any further impact," said a source at the bank, who requested anonymity.

The source said he wasn't sure how much time had elapsed between the trades in question and when the bank

first noticed the imbalance.

A spokesman said the bank is still trying to determine whether the trader, who has since been dismissed, had intended to dupe the bank by reporting erroneous trading profits. The spokesman said none of the bank's customer accounts were affected.

Positive Reflection

Although this is the second trading miscalculation at Chase within the past five years (including a trade miscalculation at the former Chemical Banking Corp.), experts say the most recent events are actually a positive reflection of how Chase and many institutions historically have done a good job of monitoring financial transactions for any improprieties. "The only banks that don't experience these losses are the ones who don't trade," said Debbie Williams, a risk-management analyst at Meridian Research Inc., a Newton, Mass.-based financial services consultant.

Although banks typically install alerts on their risk-management systems to notify officials if a trade or set of trades has passed a financial threshold, said Williams, profitable traders are often given a lot of leeway to execute trades and make money for their firms.

Banks such as Chase don't monitor all of their foreign-exchange trades in real time because they haven't yet fully automated their order-entry and trade-execution processes, said Mike McEvoy, an analyst at TowerGroup in Needham, Mass. "Banks can't monitor their [financial] exposure at any given time — maybe they can see what their positions were" a day ago, he said. ■

Web Eases Teamwork in Development Cycle

BY JAHIRUDDIN YILMAZ

A slew of emerging Web-based services promises to help companies shorten product design cycles by easing the flow of design information across the enterprise and supply chain.

Allibre Inc., a start-up in Richardson, Texas, this week will launch a Web-based service that allows users to access mechanical design applications from its Web site. Subscribers, who pay a monthly fee of \$100 per user, can log on to Allibre's site and use its applications to collaborate on a variety of design products, including real-time, 3-D design collaboration over the Web.

Similarly, eVim.com, a joint venture of Engineering Animation Inc. (EAI) and Hewlett-Packard Co., later this month will start a hosting service that

offers subscribers a range of analytical and 3-D design software from software vendor Ansys Inc. EVim.com already offers subscription services, priced at \$99 to \$360 per user per month, for sharing engineering documents, product data and design information over the Internet.

And Spatial Technologies

Inc. in Denver has launched a service for translating engineering drawings from one computer-aided design and manufacturing (CAD/CAM) format to another over the Web. Users submit models to Spatial's Web site and for \$20 per translated megabyte get them back in the desired format.

Services such as these break

through many of the interoperability problems that have long made project collaboration a nightmare in the design and engineering communities, said Matthew Burke, a vice president at M2 Technologies Inc., a Waltham, Mass. integrator of graphics applications.

The problem stems from the fact that a design created using one CAD package can't be easily viewed or manipulated in another, said Don Rathbun, a staff engineer at AlliedSignal Inc. in Kansas City, Mo. Project groups at AlliedSignal use collaboration tools from several vendors to stitch together information from multiple design packages — with less than satisfactory results.

AlliedSignal is testing Allibre's offering as part of a "concurrent engineering" effort in which teams from engineering, design and production departments work on a common, 3-D model, Rathbun said. ■

VENUE	SERVICE	FUNCTION
HP and EAI	eVim.com www.e-vim.com	Project collaboration portal for sharing documents, design and data
Allibre	www.allibre.com	Hosted mechanical design application and project collaboration
Spatial Technologies	3dmodelserver.com	Translating designs between formats



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BRIEFS

AOL Sued Over ADA

The National Federation of the Blind last week filed suit against America Online Inc., charging that AOL's Internet service is inaccessible to the blind and violates the Americans with Disabilities Act. The suit seeks to order AOL to redesign its service to accommodate screen-access software. Rich D'Amato, AOL's spokesman, said the next version of the company's software will include an interface to screen readers.

Online Trades Decline

The online stock trading market witnessed its first quarter-to-quarter decline in trading volume for the quarter that ended Sept. 30. The number of daily online trades dropped 7.8% from the second quarter, according to a study released last week by Piper Jaffray Inc. in Minneapolis. However, turnover added 1.1 million orders in the period.

Tool Lets NT Move to Active Directory

At the end of the year, Microsoft Web tools make available as a free Web download a tool it borrowed from Microsoft Critical Software Inc. in Houston. The tool helps users migrate Windows NT 4.0 domains and users to the hierarchical organizational structure of Active Directory. The tool is for Windows 2000 users.

Intekni Caching Tool

Intekni Corp. in Foster City, Calif., a company that has traditionally provided search-engine and content-delivery mechanisms for Internet portals and content providers, announced last week it would market its caching technology to corporate clients with its new Traffic Server ES6000 and ES200 software.

Quick Extranets

Avental Corp. in Seattle announced last week a new extranet management service that it says will reduce extranet deployment times from an average of 10 months to 10 weeks. Users will pay a monthly subscription fee, with an up-front capital cost.

Laptop Suits Spark Price Hike Fears

Users say litigation wave prompted by Toshiba settlement only benefits lawyers

BY DOMINIQUE DECKMANN

TOSHIBA CORP.'s decision last week to settle claims that it shipped faulty floppy disk drive controllers stunned observers because there appear to have been no reports of actual data loss due to the defect. Meanwhile, users and analysts said the litigation against four other notebook computer manufacturers will only benefit lawyers — and users may end up footing the bill.

"I think the [PC] industry should stand up and defend itself... and perhaps nip this thing in the bud before it becomes one more additional cost of manufacturing computers," said Mark Ferguson, a founding partner at Chicago law firm Bartlett Beck Herman Talenchar & Scott, which isn't involved in the litigation.

After winning a settlement from Toshiba valued at up to \$2.1 billion, a group of four law firms headed by litigator Wayne Rezend in Beaumont, Texas, filed similar class-action suits against Compaq Computer Corp., Packard Bell NEC Inc., Hewlett-Packard Co. and eMachines Inc. All of these companies are accused of shipping computers with faulty floppy disk drive controllers since 1985, possibly causing data loss or data corruption. None of the companies would comment on the complaint, but a spokesperson for Houston-based Compaq said the company would "vigorously defend" itself.

Analysts expressed puzzlement at Toshiba's decision to settle a claim that many believe it could have fought successfully in court. Some speculated that Toshiba's top executives in Japan may be distrustful of U.S. courts.

Toshiba will pay \$600 million in cash and the users in vouchers and other compensation to laptop computer users, said Patrick Woodson, a spokesman for Rezend. Woodson said the litigation lawyers themselves "had been compensated," but he wouldn't say how much they had received.

John Scannell, director of information technology planning at Consolidated Edison Company of New York Inc., said his company uses laptops from Toshiba and Compaq but users never noticed any problems related to floppy drives.

"Floppy drives aren't really used a lot," he observed. "People plug in to the network and transfer files that way."

Some users fear the lawyers involved in the litigation are helping themselves rather than consumers. Manufacturers "are going to pass this cost on to consumers," said Jeff LePage, director of MIS at Amer-

ican Express, said that way.

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Channel Conflicts Push Levi to Halt Web Sales

Flexible Web strategy is key, observers say

BY STACY COLLETT

Levi Strauss & Co.'s decision to stop selling its clothing online was prompted more by mounting channel conflict than sagging sales, according to industry observers. But most believe the move is more of a retrenchment than a retreat from e-commerce for the San Francisco-based company.

Levi disclosed last month that it would cease direct sales on the Web shortly after the holiday season and move its online retail efforts to New York-based Macy's and Plano, Texas-based J.C. Penney Co., which will sell Levi's and Dockers on their Web sites (News, Nov. 1). The move came five months after Levi announced it would be the sole retailer of its brand on the Web.

Levi revisited its decision, citing sagging sales that failed to offset the costs of maintaining an online presence. But a company spokesman said channel relations were a mounting concern, as retailers were asking to carry Levi's products online.

"Those discussions have culminated in this shift in how we offer our products," said Jeff Beckman, a Levi spokesman.

Observers agreed Levi needed an about-face. "[Selling online exclusively] is an incredi-

Levi's Web Story

November 1998 Levi begins selling its apparel online; welcomes channel partners to do so as well.

May 1999 Levi says it alone will sell its goods online.

October 1998 Levi's Web sites plan to defer online sales to Macy's and J.C. Penney after the holidays.

bly shortsighted strategy," said Dennis Driscoll, a senior vice president at Extratopix Inc., a Boston-based consulting firm. Driscoll said Levi had other alternatives. "They could pay the retailers for their sales or offer different products online, or bite the bullet and see if the threat [by channel partners] is real," he said.

Others suggested that selling online wasn't as easy as Levi thought. "It's expensive,

Paying Up

A lawsuit filed in federal court in Texas alleges that Toshiba was selling notebook computers with faulty floppy disk controllers that may cause data loss. Under the settlement:

■ Toshiba will pay up to \$2.1B in damages (\$600M million of which in cash) but doesn't admit to any legal liability.

■ Users who bought a Toshiba laptop since March 1998 can receive cash payments up to \$700.

■ Users of older laptops will receive vouchers of \$100 or \$225.

can Fast Freight Inc. in Kent, Wash. He added that notebooks cost enough already without users having to pay for the cost of litigation. ■

and you're duplicating the functionality that a retailer does," said Scott Silverman, vice president of Internet retailing at the National Retail Federation in Washington.

Vish Krishnan, a professor of business at the University of Texas in Austin, said even venerable companies like Wal-Mart Stores Inc. use third-party providers to fill orders. "E-commerce needs guidance, warehouses and people to fulfill what is promised to people on the Web," he said. After the holidays, visitors to www.levi.com and www.dockers.com will still be able to browse merchandise there but will follow links to the department stores to buy things.

In the long term, observers said, Levi won't be hurt by changing its Web strategy. In fact, they said, it's important to stay flexible. "Macy's is in its third iteration of what they think their Web presence should look like," noted Robert Berger, president of Berger Advertiser Management Services Inc., a consulting firm in Hillsborough, Calif. "Others are still struggling to find out exactly what they should be doing on the Web." ■

Correction

A Nov. 1 News story ("FOX Affiliates with Big 5 Firm," page 20) misstated an AMT Research Inc. analyst. The analyst quoted was John Fontanella.



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Congress Closes in on E-Signatures Bill

BY CRAIG STEFAN

A bill that would set national standards for recognizing the legal merit of digital signatures

has moved closer to passage.

Late last week, leaders in the U.S. House of Representatives reached agreement on the bill,

stripping out some language

opposed by consumer groups. The agreement, which could bring a new vote this week,

came after the House failed to pass the Electronic Signatures in Global and National Commerce Act early last week.

"Democrats wanted very much to get it done, and now there is bipartisan compromise

that we can put forward. We think we will be able to do it this year," said Eric London, a spokesman for House minority leader Sen. Richard Gephardt (D-Mo.).

The measure seeks to give digital signatures the same legal weight as written ones. Users such as Ford Motor Credit Co. in Dearborn, Mich., had said that was needed before they could start letting customers sign documents electronically.

But some consumer groups had criticized provisions in the proposed bill, claiming they would create the potential for people who don't have access to the Internet or e-mail to be "tricked" into agreeing to receive important documents electronically.

"It's not necessary to do what this bill would have done in order to promote commerce over the Internet," said Margot Saunders, managing attorney at the Washington office of the National Consumer Law Center. "None of the objections we have even relates to digital signatures."

Politics

Last week, Steve Schmidt, a spokesman for the House Commerce Committee, blamed the failure to pass the bill on political pressure from the Clinton administration.

"The White House has unfortunately made this a partisan political issue," Schmidt said. "It doesn't want to give Republicans a victory on technology issues, period. But the Internet is the loser here."

The Information Technology Association of America had lobbied in favor of the bill and still hopes the measure will eventually be passed by the House, according to Harris Miller, president of the industry trade group in Arlington, Va.

The consumer issues that were raised by opponents and have since been resolved were "such a red herring that it's hard to believe anyone is paying attention to that argument," Miller said.

State governments are also moving to adopt uniform rules for digital signatures, but it could take several years to win approval from all the state legislatures (Business, Aug. 9).

Patrick Thibodeau contributed to this story.

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Microsoft Releases Win 2000 Pricing

But figures not relevant for all customers

BY RIM S. HADSH AND DAVID ORENSTEIN

UNEXPECTEDLY talkative about pricing, Microsoft Corp. last week revealed what Windows 2000 will cost users when it ships in February. The numbers aren't simple, with prices depending on which Microsoft product users upgrade from, how many units they buy and whether they are replacing any rival operating systems, such as Novell Inc.'s NetWare or Sun Microsystems Inc.'s Solaris.

Generally, the desktop version of Windows 2000, dubbed Windows 2000 Professional, costs from \$349 to \$399; fees for the server version depend on how many users will access it and which server it is. Windows 2000 Server is the base model,

and pricing starts at \$1,199 at retail (see chart). Street prices will be lower. Microsoft hasn't yet priced the top-end Windows 2000 DataCenter Server.

more to keep users paying attention to Microsoft, said Eric Klein, an analyst at The Yankee Group in Boston.

"There are factors looming ... that may not bode well for Microsoft, including application hosting providers selling

Windows 2000: What It Will Cost You

SCENARIO 1: NOT SMALL TO MEDIUM APPLICATIONS	
Windows 2000 Server, for 10 users	\$1,199
Plus \$329 per user*	\$3,590
Total	\$4,789
SCENARIO 2: ENTERPRISE APPLICATIONS	
Windows 2000 Advanced Server, for 25 users	\$3,999
Plus \$329 per user*	\$7,975
Total	\$11,974

*Full retail price

That Microsoft said anything at all about costs prior to the product's Feb. 17 release is surprising — and is likely a

strategy by subscription. That is definitely not how Microsoft traditionally operates," Klein said. "Microsoft is doing a lot

of adjusting right now."

At least one change in Microsoft's mind-set can make life simpler for users. People with Windows 95 or 98 on their PCs can buy an upgrade to get to the desktop version of Windows 2000 for \$219 per user. Under previous Windows NT pricing, users would have had no discount option for a similar upgrade and would have had to pay the full \$319 retail price for the operating system.

But for many corporate users, retail pricing has limited relevance. Kansas City Life Insurance Co. took a long, hard look at engaging in a three-year enterprise license with Microsoft that would have included an upgrade to Windows 2000 for all 700 of its users, said Charles Duffy, senior vice president of operations. Microsoft and the company's reseller gave a lot of ground to try to win the roughly \$500,000 deal, he said.

But Duffy said the price tag was just too high, especially considering that he's happy with his current spread of mostly Windows 98 clients and NT 4.0 servers. ■

Open-Source Apps Win Red Hat Nod

Apache, SendMail

BY DAVID ORENSTEIN

Red Hat Software Inc.'s newly expanded mission to support all open-source software will likely encourage corporate users to hop off the fence and adopt open-source products, observers said.

If that happens, current users of software like Apache and SendMail could benefit, even if they don't want to pay Red Hat for support, because of the increased cloud of open source in the marketplace, a user and an analyst added.

Linux vendor Red Hat, in Research Triangle Park, N.C., has garnered the name recognition that can bridge the confidence gap between users and noncommercial software, said analyst Stacy Quidant at Giga Information Group Inc. in Cambridge, Mass. "Red Hat's successful [initial public offering] and branding in North America could be compelling for companies," she said.

Red Hat's business plan is based on offering fee-based support packages to users of Linux, which is free. Last week's announcement expands Red Hat's commercial support to all open-source applications, many of which are included with its Linux distributions. Quidant said Red Hat is leading a movement among Linux vendors to make support contracts a key part of open-source software. ■

Microsoft Comes Around on Y2K

Now that it's virtually the eleventh hour for year 2000 remediation, users and analysts are expressing satisfaction with Microsoft Corp.'s efforts to help companies prevent Y2K problems with its software.

Last week, Microsoft revealed that its flagship product, Windows NT 4.0, still had some year 2000 issues. In addition, Microsoft announced a partnership with the industry's major antivirus software companies to give users free protection from viruses that might seek to

capitalize on the year 2000 problem. The protection will last for 90 days surrounding the new year.

Rather than being alarmed by the new Y2K content of Service Pack 6 for NT 4.0, observers said they're confident that Microsoft has given them the answers and guidance they need.

"I think they have been responsive," said Barbara McIntyre, director of administration at Shopko Stores Inc., a chain of Midwestern discount stores based in Green Bay,

Wis. "Microsoft is so prevalent everywhere and it has gotten on much publicity ... they've been put through more scrutiny."

An information technology manager at a Fortune 500 food company in the Northeast agreed that Microsoft has come around with helpful information — finally.

Indeed, McIntyre said, Microsoft has rushed to produce myriad patches that sometimes amounted to only partial fixes. Windows NT 4.0, for example, Microsoft maintains that its fourth service pack really makes it compliant, even though Service Packs 5 and 6 included

additional year 2000 patches.

For users, the prospect of additional service packs is problematic, because they have locked down their environments and now have to decide whether late patches from vendors merit a further follow-up by testing and retesting.

But analysts such as Kaden Igleh at Giga Information Group Inc. in Cambridge, Mass., said no vendor — including Microsoft — can be expected to guarantee a 100% cure. At least Microsoft has transformed its lethargy into liveliness under President Steve Ballmer, he said.

—David Orenstein

Novell Unveils NetWare 5.1

BY DAVID ORENSTEIN

Novell Inc. this week will begin the public beta test of NetWare 5.1, which analysts said includes refinements that will improve its Web server and network operating system capabilities.

"This is their formal coming-out party in the Web application server space," said Laura DiDio, an analyst at Giga Information Group Inc. in Cambridge, Mass. The product includes better integration of IBM's WebSphere standard edition application server, support for Microsoft Corp.'s Office 2000, Java, Common Object Request Broker Architecture and performance improvements like a faster caching algorithm, she said.

But mostly, DiDio said, NetWare 5.1 is meant to change the product's positioning in the minds of users, who often use the platform merely for file-and-print serving or network management with Novell Directory Services. Novell's emphasis on the Web, addressed with caching and firewall products, will still have to win over users who use other Web servers.

Lee Roth, LAN and security services manager at Southwest Airlines Co. in Dallas, said he

expects the airline to take a wait-and-see approach to putting NetWare in a Web server role. Although Southwest uses Netscape Communications Corp. software on NetWare to make its Novell GroupWise e-mail available over the Web, most of the airline's Web applications are hosted on Sun Microsystems Inc.'s Solaris operating system. NetWare's appeal as an application server will grow if Novell can inspire the develop-

ment community to provide applications for its platform, Roth said. But organizations probably won't want to expand the number of platforms used for one task like Web serving.

However, analyst Phil Schacter at The Burton Group Corp. in Midvale, Utah, said Novell can expand its current role with these new features. Many companies haven't yet made a universal, enterprise-wide commitment to one technology for that purpose, he said. ■



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BRIEFS

Solaris Tool Released

Sun Microsystems Inc. last week released Sun Management Center 2.1, the latest version of its system management software for Solaris products. New features of the software — previously known as Symon — include an agent that reduces CPU and memory consumption times and responses, a Java-based user interface for navigation, predictive failure analysis and support for the dynamic reconfiguration capabilities found on Sun's E3000 servers.

Domain Name Plan

A long impasse over the management of the domain name system ended last week with the approval by the Internet Corporation for Assigned Names and Numbers (ICANN) of a three-year agreement with Network Solutions Inc. (NSI) and the U.S. Department of Commerce. The plan calls for NSI to continue to operate the main registry for at least four years. NSI will also recognize ICANN and provide more than \$1.25 million in funding to the not-for-profit organization.

Disk Tests Fail

Research released last week by NSTL casts doubt on disk optimization techniques. One optimization approach suggests placing frequently used files in the center of the disk to reduce head movement; another claims that files should be located on the outer edge of a disk. Both concepts had short in NSTL's tests of partitioned or multiplexed disks. The tests showed that it was impossible to accurately determine the center and outer edge of logical disk volumes.

With hundreds of files logged on to a server, head moves on the placement may actually increase head movement, NSTL said.

NAS Price War?

ECSS Inc. in Pikesville, Md., announced last week that its Synchrovision 2 system is available for about 12 cents per megabyte. ECSS said this is the first time a fault-tolerant Network Appliance Support (NAS) system has been priced below 25 cents per megabyte. The Synchrovision 2 includes 30 Seagate 500-byte disk drives.

Sun Servers to Offer Pay-as-You-Grow Plan

Program will let users upgrade quickly

BY JAHNURAN VILANIAN

SUN MICROSYSTEMS Inc., following the lead of mainframe vendors, next week will offer a new way to acquire high-end servers that lets users quickly add capacity with minimal disruption.

The "capacity-on-demand" server option will let customers obtain a top system that's larger than what they currently need and pay only for the portion they use.

The idea is to let users sock away capacity at little extra cost when they aren't sure how

much capacity they will need to handle fast-growing applications — such as Web server and enterprise resource planning software.

The capacity-on-demand option is only available on Sun's highest-end Enterprise 10000 server and will be formally launched Nov. 15.

Here's an example of how it will work: Users who estimate that they will need an eight-processor system to run a particular application can buy or lease a 20-processor Enterprise 10000 Unix server from Sun but only pay hardware and software fees for the eight processors actually being used.

At \$400,000 for an eight-processor license, for instance, users will get a 20-way system, plus resources like more memory and I/O slots, for much less than the \$1 million-plus it would cost otherwise, said Shahin Khan, a Sun marketing director for high-end servers.

When the need arises for more capacity, an electronic key supplied by Sun allows users to switch on additional processors and pay for them at

that time. Under the new option, processors nine through 20 will cost \$66,500 per additional processor, or slightly more than it would have cost previously. Each additional processor beyond 20 will cost \$27,500, as usual, Kahn said.

The plan makes sense only if the cost of upgrading from an eight-processor system to a 20-processor system isn't significantly higher than the cost of doing it in the traditional way,

said Matt Fahrner, a network administrator at Burlington Coast Factory Warehouse Corp. in Etta, N.H. "I may be interested if the [cost] difference were less than 10%. Otherwise, you are better off buying the chassis and adding what you need," he said.

Buying too much capacity ahead of time could also lock customers in to older technology, he added.

"If you think you are going to stay below 10 CPUs, the traditional buy is probably slightly cheaper," Kahn agreed.

The Sun option is similar to those offered by IBM and AMDahl Corp. for mainframes.

"The advantage of this business model is that it provides customers with a very fast upgrade path," said Chris Willard, an analyst at International Data Corp. in Mountain View, Calif. "And it helps [vendors] lock in customers." ▀

Users Get Solaris 8 Preview

New hardware to require new OS

BY JAHNURAN VILANIAN

Sun Microsystems Inc. is preparing users for a major upgrade to the next version of its Solaris operating system.

The company last week announced a Solaris 8 early access program that lets users purchase advance copies of the operating system for \$19.95. The software will be generally available in February.

The 64-bit Solaris 8 is the latest iteration of Sun's popular Unix environment, and the only version that will run on Sun's next-generation UltraSPARC III microprocessor-based servers, which are slated to hit the market in the second half of next year.

Users who want to upgrade to the new hardware will have to move to the new operating system. That's part of why Sun is eager to get early copies of Solaris 8 into users' hands, said Tony Iams, an analyst at D. H. Brown Associates Inc. in Port Chester, N.Y.

"Sun is making sure that users have no problems running their applications on Solaris 8. They want to be able to identify any issues as quickly as they can," Iams said.

Solaris 8 will feature several mainframe-like capabilities that should further extend its influence in the high-end server space, Iams added. New features include the following:

■ Support for jobs, project and accounting capabilities that give administrators a detailed accounting on server usage.

■ A reconfiguration manager that lets administrators automate allocation of resources based on preset policies.

■ A live upgrade capability that lets users upgrade portions of a partitioned server without bringing the whole box down.

■ A "hot patch" feature that lets managers apply patches when the system is running.

■ Support for the IPv6 Internet standard. ▀

Big Iron for App Dev Debuts

IBM aims S/390 at e-commerce users

BY LEE COPELAND

IBM last week introduced a new testing package designed to give S/390 users a cheaper system to develop e-commerce applications.

The S/390 Application Development Solutions (ADS) model, due Nov. 26, offers a preconfigured mainframe with application development workstation software. IBM will license the system as a test environment for new applications.

"Batch windows do not exist anymore because e-commerce transactions are running and all the time, so the opportunity for testing when off-line

does not exist," said Mike Rhodin, an IBM software server executive.

The S/390 ADS includes five electronic-business templates to aid users in migrating data and designing clients, such as a Web browser or graphical user interface, for CICS applications and migrating from existing mainframe programs.

IBM also offers consulting to get the environment up. Pricing starts at \$170,000.

Analysts said the IBM package offers some leeway for companies with high license fees to maintain mainframes for testing and production.

"IBM's biggest challenge is that all the e-companies are deploying not on the S/390, but on the Unix and NTs of the world," said analyst Rob

Schafer at Meta Group Inc. in Stamford, Conn. "What has historically killed the 390 platform is not the [hardware] cost

— IBM fixed that long ago — but the software is high-cost, not just on the operational production side, but also on the test and development side."

Meanwhile, mainframe development Frank Boyle, deputy CIO at the U.S. Department of Agriculture's Agricultural Marketing Service in Washington, said he prefers to test on the production machine.

"One problem is that no two systems, mainframe or file server, are alike, so you may still run into trouble when in the production environment," he said. "We have used contractor's mainframes for testing, but there always is a little surprise. It's best to test on the same computer as the live environment because there are so many variables." ▀

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Y2K Rumor-Control Centers in the Works

Feds give final Y2K forecast this week:
Small problems here, big ones overseas

BY PATRICK THIBODEAU
WASHINGTON

THE WHITE House and private businesses are developing year 2000 command centers to respond to problems and prevent rumors and myths from prompting panic buying or rash financial decisions.

"Our biggest concern has always been the fear that people will make decisions about economics, buying or selling of securities, based on a rumor," said J. Patrick Campbell, the chief operating officer at

Nasdaq Stock Market Inc.

Nasdaq plans an education campaign to inform investors about its year 2000 work.

Campbell told two House committees that Nasdaq will also establish a command center that will have communications

"hot links" with vendors, news media and the White House Y2K Information Coordination Center (ICC).

Nasdaq's operation mirrors

Y2K Information Coordination Center

Beginning Dec. 31, federal officials plan to issue updates every four hours throughout the weekend

■ U.S.: Federal officials have made agreements with trade associations representing finance, telecommunications, gas, airlines and others, to share ongoing Y2K status information. Federal agencies will also report to the command center

■ International: State Department, Defense and intelligence agencies to keep tabs on world developments

a much broader effort by federal officials to gather information from industry and agencies about Y2K and channel it to the ICC starting Dec. 31.

At the hearing, White House Y2K czar John Koskinen defended his relatively mild year-2000 forecast, especially his use of self-reported data from industry trade groups.

The White House and congressional committees have generally agreed that year 2000 problems — at least domestically — will be temporary, at worst. The White House will reaffirm that forecast in a Y2K report it will release this week, but that report will also cite problem areas that are of greatest worry — most of them overseas, in countries such as Russia.

But the domestic Y2K forecast is based largely on trade association surveys and that has aroused suspicion, especially in the Senate's Y2K committee, that the data may be too rosy. ■

Food Servers Wake to Web Efficiencies

BY SAMI LAIB
DALLAS

Chain restaurant owners who think they don't need to worry about e-commerce because they can't deliver food over the Internet are sadly mistaken.

That was the message last week at FS/Tec '99, the sixth annual information technology conference for chain owners.

Yet in a group that honored businesses for such successes as implementing point-of-sale systems that allow data analysis (see chart), the Internet appears to be a big leap away.

"Most e-business [in this industry] now is over intranets," said Michael R. Haase, information systems director at Harman Management Corp. in Salt Lake City. "I don't know that the Internet is ready."

Harman, which manages Kentucky Fried Chicken, Taco Bell and Pizza Hut restaurants, is replacing 10-year-old financial systems and 12-year-old cash registers and building a data warehouse and intranet to give managers real-time access to payroll, ordering and sales data, Haase said.

Catherine I. Michitsch, president of consultancy Michitsch Systems Inc. in British Columbia, said customer expectations will drive Web development, as will the need to keep employees challenged in this high-turnover business.

"If your company is behind on this, you'll lose," Michitsch said. "You'll lose customers, you'll lose employees to more interesting jobs, and you'll lose management because they'll be bored and go work for more forward-thinking companies."

Fast Flow

Some FS/Tec '99 Food Service Technology Awards

■ Mirage Resorts, Las Vegas, for its POS implementation

■ Red Robin International, Englewood, Colo., for automating data flow

3Com Tech Strategy Stresses E-Commerce

Policy networking support on tap

BY JAMES COPE
CHICAGO

3Com Corp. last week unveiled a strategy called e-Networking, supporting the notion that networks in today's e-commerce environment should be at once accessible and consistently reliable while supporting a wide range of applications, including voice and video.

The Santa Clara, Calif., company made several other announcements to an estimated 400 users attending a conference here. They included an expanded commitment to Gigabit Ethernet over copper wires and enhancements to the CoreBuilder line of enterprise-switching products.

Users and analysts had mixed views.

A network manager at St. Luke's Hospital in Duluth, Minn., Clark Averill, said e-Networking seemed like a marketing ploy. But analyst Michael Speyer at The Yankee Group in Boston said it's about time 3Com addressed market-

ing. "The company has lacked a unifying theme," he said.

Speyer also said users will appreciate a commitment to expanding and enhancing the CoreBuilder 9000 enterprise platform of chassis switches. That includes a new eight-slot

chassis for high-performance data centers with Gigabit Ethernet and multilayer switching.

3Com also said it plans to roll out an end-to-end workgroup product for Gigabit Ethernet over existing Category 5 cable in first-half 2000.

Continued from page 1

E-Supply Chains

The goal is to streamline purchasing and reduce costs throughout the supply chains of both companies. In Ford's case, for example, executives said they hope to save several billion dollars in purchasing costs and lessen the time it takes to build cars for custom orders — a process that can take four to eight weeks now.

"If we don't see a significant reduction in [manufacturing] cycle times, we won't have done our job," said Brian Kelley, president of Ford's global e-commerce unit. "You won't see that in the first six months, because the processes are massive. But it's not going to take five years, either."

Many details about how the online exchanges will work remain unclear. Ford and GM both still need to finalize their deals with Oracle and Commerce One. They also must decide how to charge suppliers to use the new marketplace.

That kind of uncertainty is becoming a standard feature of the e-commerce rush by automakers, according to analysts who follow the industry.

"It's a press-release race," said Chris Denove, a consultant at I.D. Power & Associates in Troy, Mich. "We're seeing companies make announcements of grandiose plans well before they have the infrastructure in place."

But the stakes are potentially enormous. For example, Ford said it eventually wants to handle all of its own purchasing — totaling \$80 billion per year —

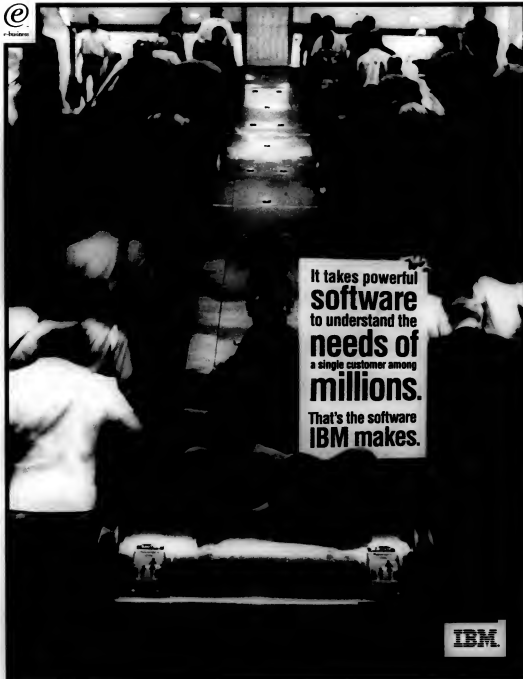
Most important may be the partnership announcement between 3Com and IPHighway, said Giga Information Group Inc. analyst Stan Schatt in Cambridge, Mass. That will let 3Com deliver a policy-based networking product — that is, a way of managing a network based on rules about users and applications — as early as the second quarter, Schatt said. ■

through the AutoXchange joint venture with Oracle.

Ray Lane, Oracle's president, said AutoXchange should exceed \$1 billion in annual revenue by 2001 through charges such as transaction fees and commissions on auctions of excess inventories. GM said it has similar revenue goals.

Both Ford and GM said they won't force suppliers to take part in the online exchanges at first. But Ford CEO Jacques Nasser said he expects suppliers to view the Web as "the only way to do business in the long term."

And Harold Kutner, head of worldwide purchasing at GM, said all of its buying is expected to be done via the Web within two years. Suppliers that aren't "actively engaged" on TradeXchange by then may be replaced, he warned. ■

A high-contrast, black and white photograph of a large crowd of people in a dark hall. They are all looking towards a bright, glowing rectangular area at the far end of the hall, which appears to be a large screen or a stage. The perspective is from behind the crowd, looking down the length of the hall.

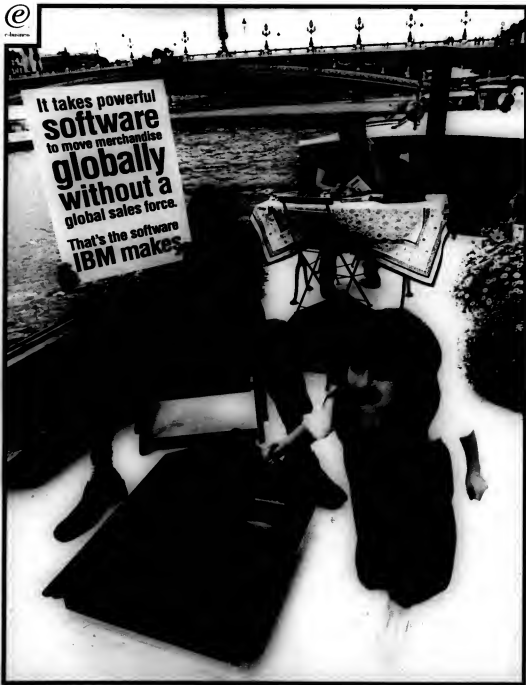
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Internet Tax Plan Gains Support

'Zero burden' proposal would have third parties, not businesses, collect tax

BY PATRICK THRODEAU
WASHINGTON

THE INTERNET has been good to Todd Mogren and his company, Coastal Tool & Supply, a power tool reseller in West Hartford, Conn. In 1996, the company's first year of selling goods on the Internet, online revenue was \$886,000. He said he expects that to increase to as much as \$3 million this year.

But Mogren, the company's information systems director, said Coastal's online sales success could easily unravel if it were forced to collect sales taxes in the 1,000 or so taxing jurisdictions it sells in. At 30 minutes of processing time per tax form, it would take 500 worker hours to meet those multiple tax obligations. "We would effectively have to shut down because of the staffing requirements," he said.

With that problem in mind, Mogren said he sees some positive aspects in a plan being developed by a consortium of state and local government officials to create a sales tax collection system that would eliminate administrative costs for merchants while providing e-commerce sales tax dollars that are now out of reach to states and cities.

Third-Party Intermediaries

The "zero burden" plan will be presented by the National Governors Association, the National League of Cities and other groups to the congressionally appointed Advisory Commission on Electronic Commerce on Nov. 15, the commission's deadline for proposals.

Under the proposal, third-party intermediaries — which could be credit-card companies, financial institutions or technology companies — would handle a vendor's tax calculations, payments and other administrative burdens.

For instance, just before an online buyer completes a purchase, the shopping basket data would be sent to the tax intermediary, which would then calculate the sales tax obligation for the buyer's town, city or county. Assuming the buyer pays by credit card, the tax payment would be sent by the intermediary to the buyer's state.

Vendor participation would be voluntary, but there are incentives for joining. This proposal "allows you an awful lot of freedom about how you interact with your customer — that is the main attraction," said Harley Duncan, executive director of the Federation of Tax Administrators in Washington.

Speaking last week at a U.S. Chamber of Commerce forum on Internet taxation, David Bullington, vice president of taxes at Wal-Mart Stores Inc.

in Bentonville, Ark., said he saw potential in the plan and argued strongly for tax simplification and a level playing field for all sellers.

"Why should those that are pure dot-com sellers have a 6% to 8% advantage?" Bullington said, referring to the sales tax Internet merchants don't collect in areas where they don't have a physical presence.

Sen. Ron Wyden (D-Ore.) said at the chamber forum that he might seek a two-year extension of an existing Internet tax moratorium after a tax advisory commission completes its work to allow time for debate on its proposals. Wyden championed the Internet Tax Freedom Act in Congress, which extended a three-year moratorium on new Internet taxes until Oct. 21, 2001. ■

Web Plays Matchmaker for IT Temps

Online markets connect employers and IT contractors

BY JULIENNA DASH

Web-based marketplace are popping up — with new pricing models — to help corporate information technology departments find IT contractors and consultants with particular skills.

For example, by Nov. 23, New York-based RecruitDynamics.com LLC will have a fully functional Web site for matching IT contractors and consultants with employers' needs. The site features an OpenBid auction service and tools that allow employers and job seekers to hone their search criteria.

Similarly, job board Monster.com, based in Maynard, Mass., has a Talent Market, which it launched last July for IT contractors.

They both use a tiered pricing model, in which a flat fee is charged depending on the size of the project. For example, at Monster.com, if an IT contractor is paid \$25 per hour for a 100-hour project, the project size is \$7,500. At that level, the employer would pay Monster.com a fee of \$500.

Last August, SkillsVillage.com Inc., based in Santa

Clara, Calif., debated as an online community for the consulting workforce. It charges the employer a flat fee of \$25 per hour for each hour the contractor works.

The flat fees are a big departure from the markup practiced by brick-and-mortar employment agencies, which typically add 30% to 40% to their commission.

project updates in one place.

Kosak said using the Web site is better than getting fire by day from headhunters, many of whom aren't technically savvy. At SkillsVillage.com, he said he can screen client firms and contact them directly to make sure there's a good fit.

IT contractors seem to be flocking to the Web sites. The number of contractors registered at SkillsVillage.com increased from 500 to 900 in the past six weeks. And Monster.com adds about 4,000 new contractors every week.

Meanwhile, the national demand for IT contractors continues to rise. By 2002, IT contractors and consultants will make up as much as 50% of the IT workforce at organizations with \$1 billion or more in revenue, according to Gartner Group Inc. in Stamford, Conn.

In essence, the Web marketplace is trying to cut out the middleman. That's a good idea, said David Foote, managing partner at Foote Partners LLC, a New Canaan, Conn.-based consultancy specializing in IT workforce issues.

But Foote said a company shouldn't rely on the Web alone to screen candidates, because the sites only identify technical skills. Personal interviews to assess a candidate's soft skills are needed, too, he said. ■

IBM Portal Opens S/390

BY MARK HALL
SAN FRANCISCO

When one of Hewitt Associates LLC's blue-chip customers decided that it wanted to access its human resources information via the Web, Hewitt deployed a beta version of IBM's portal product, which was announced here last week.

Before the arrival of the Enterprise Information Portal (EIP), Hewitt, a \$1 billion outsourcing of human resources services in Lincolnshire, Ill., had its 72 call centers access all of its customers' employee records in its IBM S/390 systems via a proprietary graphical user interface, said Helen Tipton, Hewitt's project manager.

A new client wanted its existing call centers and Hewitt's to be able to respond to employee queries about human resources issues. That meant deploying a Web-based system, Tipton said, given that the foundation for Hewitt's services resides on the mainframe. It also meant deploying an IBM system.

Until now, access to IBM data via a portal has been limited to proprietary approaches. But EIP offers open access, said Gerry Murray, an analyst at International Data Corp. in Framingham, Mass. "IBM's more interested in playing with everyone and making its data repositories open to the world," he said. "But the EIP is not a groundbreaking product."

Murray said products from Autonomy Inc. in San Francisco and Verity Inc. in Sunnyvale, Calif., already offer EIP's federated searching capabilities of information held in multiple repositories in different locations and systems.

Hewitt, however, wasn't looking for cutting-edge technology. The company needed to roll out its system to its customer in eight months and provide a quick return on investment, Tipton said.

She said Hewitt would get a return on its investment in 18 months, six months sooner than expected, because it has been able to deploy new applications faster to its own call centers over the Web. ■

Online Resources

Some Web sites that offer employment resources for IT contractors:

- 1 www.skillsvillage.com
- 2 www.recruitedynamics.com
- 3 www.monster.com
- 4 www.dice.com
- 5 www.bidd4geeks.com

according to RecruitDynamics.com CEO Mark O'Brien. He said contractors resented agencies taking such a large chunk of change.

Chris Kosak, an IT consultant who specializes in PeopleSoft Inc. applications and currently works for a public utility in San Francisco, said he likes the online approach. SkillsVillage.com allows him to handle several job-related chores such as entering time logs and



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...than keeping

...leaders are
...you've

...for IT
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IT Gets Stress-Tested Days Before Web Debut

That means crash-testing servers, 20-hour days, bedrolls under the desks

BY STEVE WELFEDER

MIKE LANNON has his own company. He has 80 people (at last count) working for him. He has a \$20 million ad campaign set to hit national TV in a week.

What he didn't have last week was a place to sit and talk. And he didn't have much time. His former office had been commandeered by five employees. There was only one conference room left, and the information technology staff were meeting there. Lannon tried to charm them. No dice.

So Lannon — the 40-year-old founder and CEO of Send.com — wedged himself between a couple of 3-foot-wide call-center booths to eat a chili dog and do his interview. Whoops. No chairs.

Send.com is an online gift company aimed at corporate gift purchasers such as salespeople who might give a client a bottle of wine or a golf outing. It's housed in a dog-eared, overfurnished suite of offices just off Route 128 in Waltham, Mass. Last week, the company let me hang around to see what life is like for the IT staff during the frantic days leading up to the very public coming-out party of its Web site.

Here's what you find at crunch time. Titles are meaningless. Everybody noodles around in everything. Deadlines come in two varieties: "later on" (which means today) and "tomorrow." Heroic efforts are the norm.

You find people who work two 20-hour days in a row. You don't find a lot of people who are in it for the potential payoff on the back end. The 90-hour-plus workweeks seem to weed out the gold diggers and leave the true believers.

Last year, the company (then known as SendWine.com) did just under \$1 million in revenue during the holidays, Lannon said. He wouldn't specify this year's revenue goals but said he's eyeing "the same trajectory as eToys." A little math shows that Lannon may be hoping for a \$40 million season.

Today, Send.com is launching its first television ad campaign, which will cost up to \$20 million in eight weeks. That \$20 million comes from some heavy-hitting Silicon Valley venture capital firms that are interested only in winners. "They pump in lots of money [and] try to scare everybody else out of the market," Lannon said. "If I take my foot off the gas pedal, I get fired."

Lannon needs to step on it.

"Gift-only merchants have trouble retaining customers," said Mike May, an analyst at Jupiter Communications Inc., a New York-based research firm. "Because most often, the buyer of the gift has no idea what its presentation [to the recipient] is like." Send.com is battling this issue by emphasizing what employees tirelessly call "the gift-giving experience."

The idea is to give the gift buyer more than the usual e-mail confirmation. Send.com goes so far as to send the recipient a stamped, blank thank-you note and a reminder that so-and-so recently sent him a gift. By thus closing the loop, the company hopes to build loyalty as it battles not only such direct competitors as BravoGifts.com and RedEnvelope Gifts Online and BravaGifts.com Inc. but also any Web company with a gift certificate program.

Testing Limits

Send.com is cutting things pretty close. Its previous radio ads spiked business 200% wherever they ran. National TV exposure will doubtless dwarf that. Shouldn't the Web site be finished by now? "We would have loved to launch sooner," Lannon conceded, "but we went from one product to 16. Had to make sure we had everything in place."

And once everything's in place, it has got to hold up — Send.com is girding for up to 500 page requests per second during the holiday rush.



If I take my foot off the gas pedal, I get fired.

MIKE LANNON (LEFT), CEO, SEND.COM

Last week, Jamie Cash was trying like hell to meek down the system to find its limits. Cash looks like your basic Web jockey, right down to his sandals, but he's director of enterprise architecture.

In order to simulate Web requests, Cash sent a server home with every employee who had a cable modem. Those servers were then set up to request a 1K-byte (page) over and over till we see what blows up," he said cheerfully.

With the help of a consultant recently called Yoda, Send.com tested dual-CPU servers

— Compaq Computer Corp. 1850iS — against single-CPU versions. The dual-CPU's won, hands down. Cash then needed to figure out how to get 20 of them up to NavSite Inc., an Andover, Mass.-based application service provider that will provide all data-center infrastructure support for Send.com's production systems.

A few days later, there was good news: Tests showed that the system was handling the page-request load, with the slowest transactions running at an acceptable 5 to 7 seconds, said Ken Surdan, vice president of technology and systems development. "The dual-CPU's came through," he told a cheering executive meeting.

Microsoft Architecture

Send.com uses a three-tier architecture built with Microsoft Corp.'s Internet Information Server, SQL Server database, Visual Basic and Java-Script, all running on Windows NT.

On the front end, Send.com uses Active Server Pages. The middle layer is made up of Component Object Model objects. The data layer is a relational SQL Server database.

Surdan said Send.com "learned some lessons" last Christmas and modified its architecture to handle this year's projected growth. Last year, he said, "Web pages were tightly coupled to the database. The system wasn't scalable." Now, the presentation layer interacts minimally with the underlying data, so "each layer of the architecture can scale independently."

To prepare for the expected flood of orders, Send.com chose San Mateo, Calif.-based Octane Software Inc.'s Octane

Stream Test, page 26



Continued from page 25

Stress Test

99 customer relationship management suite, which manages customer interaction via the Web, e-mail, phone and fax.

Marketing Strategies

"Nobody remembers Send.com," Tony Botzso said. "Everybody remembers the Giver."

At 33, Botzso, Send.com's director of merchandising, is the company's oldest employee. He has 35 years' experience in retail merchandising and two weeks' experience on the Internet. In a meeting one week ago, he was suggesting that the company rethink its Web site.

And Paul Griffiths was listening — looking at his hands, pursing his lips.

Griffiths is Send.com's chief Web designer. He's 23 years old, 6-foot-plus and loud. He's employee No. 5. He follows a lot. (At a different meeting, somebody from marketing complained they had been given only two hours to develop Web content. "Two hours?"



CUSTOMER SERVICE manager Mike Kane and Mary O'Hara, vice president of marketing

Griffiths screamed, mostly kidding: "We can write code, have pizza and play four games of Quake in two hours!" He's also very bright.

Botzso says he thinks Send.com's ads may be too good. They feature a character called the Giver, and they're hysterically funny. The radio ads are cult favorites everywhere they run. TV versions will hit ESPN and CNBC today.

But when Griffiths first developed the Web site, the Giver didn't exist. The Web designers strove for black backgrounds, soothing colors and elegance. But at the meeting, only one week before the ads were scheduled to run, there was a move afoot to work the cartoony Giver into the home page.

Red-faced but polite, Griffiths recounted the history of the home page and pointed out that "we are now having this discussion again." Lannon sided with Griffiths. He doesn't want Send.com to rely too heavily on a single ad campaign. "Look at Priceline with those Shatner ads; they lose so much."

Thus, Griffiths was spared a home page redesign. For Monday, anyway.

20-Hour Stints

So, you want to work for a start-up. Plan on a 12-hour day, hell, better. But that's up to 15 IT workers agreed, if you're working on the project.

But right now — with the Web site going live and another major build set for Nov. 15 and the Christmas season right around the corner — it's not rare for people at Send.com to work 20-hour days. Glance under desks and you find plenty of bedrolls.

The best thing about working at a

start-up, employees said, is the utter lack of red tape. Case in point: In a Monday triage meeting, there were 53 action items on the agenda. AT&T Corp. wasn't installing a T1 line fast enough. Send.com was having a hard time getting listed in AT&T's toll-free directory assistance. There had been a major snafu on the chocolates front (one of Send.com's new gift lines). Lannon wanted to add more Shockwave to the site, pronto. UPS was charging Send.com list price. ("Well, let's have more meetings with FedEx," said one meeting participant.) Holiday demand forecasts needed to be refigured for markets where the new ads are running.

In a big company, about half the items would have called for a subcommittee and a meeting to be scheduled by the end of the week. But Tom Harden rounded the staff through the agenda in 45 minutes. Anything not crossed off the list had to be finished by Wednesday.

Harden is executive vice president of worldwide operations. IT reports to him. He came to Send.com a couple of months ago from L. I. Bean Inc. His résumé is a knockout; his very presence goes a long way toward validating Send.com, analysts said.

With the sun going down outside the crammed, cheery conference room, the meeting wrapped up. Harden scanned his marked-up agenda and said, "We're not taking much off this list, and the dates are moving." He smiled. Tightly. "We've got to kill some of these items. Time's a wastin'." ■

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Suite helps site comply with states' regulations

BY AMY HARRISON

Drug Emporium Inc., a Columbus, Ohio, drugstore chain, made a bold leap to the Web in 1997, creating DrugEmporium.com, which offers online prescriptions and advice from pharmacists. But because the parent company operates 190 stores in 36 states, complying with state regulations governing secure access to the site has proved challenging.

Matthew Erick, vice president of pharmacy at DrugEmporium.com, said that states require different combinations of password, token, fingerprint or retinal scans to authenticate the identity of doctors and pharmacists on the site.

Several biometric companies specialize in one or two authentication techniques, but few offer one way to manage multiple technologies.

Five months ago, DrugEmporium.com elected to become a beta site for a new product developed by BioNetrix

Sciences Corp. in Vienna, Va. The company's Authentication Suite manages all authentication systems from one console through the Authentication Management Infrastructure (AMI). AMI is an open platform that manages disparate authentication applications including passwords, tokens, fingerprint or retinal scans and voice recognition.

AMI allows companies to migrate from more traditional forms of authentication such as passwords to biometric techniques. It also supports role-based policies that admit users with specific credentials.

Erick said the company strives to protect patient privacy and security with a variety of authentication methods. "We needed one vendor that had the ability to integrate all the information and allow us to accommodate all the different rules and regulations we had over the many states," he said.

The BioNetrix Authentication Suite includes AMI, a BioClient, BioServer and Biometric StarterKit with fingerprint, voice and face recognition devices for \$2,500. ■

Online Pharmacy Tests Biometrics



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BRIEFS

Newbridge President Resigns After Report

Alan Letic, president and chief operating officer of Newbridge Networks Corp., resigned last week after the company announced its quarterly revenues. The Kanata, Ontario-based provider of wide-area network products said Executive Vice President Pierre Flynn has been appointed to succeed Letic. Newbridge's revenues for the quarter ended Oct. 31 was \$400 million, 17% below the expectations of analyst firm Credit Suisse First Boston Corp. in New York.

Gartner Profits Down

Gartner Group Inc. in Stamford, Conn., announced that revenues for its fiscal fourth quarter, which ended Sept. 30, increased 13% compared with the same quarter last year, but profits were down 14% from a year earlier.

The company said its revenues for the quarter were \$106.5 million and net income was \$25.5 million.

Investors Save Firm

Mobile communications company ICO Global Communications Ltd. in London said last week that its board approved a buyback plan under which it will repurchase up to \$1.2 billion to get out of handprints. Investors include Citicorp and his affiliates of companies, Telecel LLC and Eagle River Investments LLC, both in Bellevue, Wash.

New Andersen CEO

Andersen Consulting in Chicago last week named 27-year company veteran Joe W. Fordham as managing partner and CEO. Fordham, 51, succeeds George Shaboun as head of the \$1.3 billion global management and technology consulting organization. Shaboun is retiring.

Fordham most recently served as managing partner for one of Andersen's business units.

Adaptec RAID Buy

Adaptec Inc. in Milpitas, Calif., last week said it would acquire RAID controller and multi-disked Perceptics Technology in Milford, Fla., for \$230 million.

Losses Force Packard Bell NEC To Sacrifice PC Brand in U.S.

PC maker to slash 80% of staff, close factory; European unit still on top, though

BY DOMINIQUE DECKENY

PACKARD BELL NEC Inc. said last week it will withdraw its Packard Bell brand of PCs from the U.S. market, lay off 80% of its 2,600 employees and close its manufacturing plant in Sacramento, Calif.

Ron Fuchs, vice president of corporate communications at Packard Bell NEC in Sacramento, said the company's board—which is controlled by majority shareholder NEC Corp.—decided to make the cuts after it became apparent that Packard Bell NEC would miss its target of losing only \$100 million this year by about \$50 million. Last year, the company lost \$650 million. Packard Bell NEC became a separate entity from Packard Bell NEC Europe in February.

Packard Bell NEC will close down its local manufacturing operation, which currently employs between 1,500 and 1,600 workers, most of whom will lose their jobs. The company intends to sell its call center in Magna, Utah, to an out-sourcer, cutting 600 to 700 jobs there, Fuchs said.

Another victim of the reorganization will be the Packard Bell consumer brand name, which will be replaced by the NEC brand name the company already uses for its commercial PCs. Fuchs said the move away from the damaged Packard Bell brand name was already well underway before the current reorganization.

Anne Bui, an analyst at International Data Corp. (IDC) in Mountain View, Calif., said Packard Bell NEC has been "on a steady decline" for several years (see chart). Bui said Packard Bell NEC had been unable to differentiate its brand, despite some strong PC product designs. Following closely on IBM's retreat from the retail market, the company's woes are another sign of

the ongoing consolidation of the PC industry, said Bui.

According to data from IDC, Packard Bell NEC held a 4.2% share of U.S. PC shipments in the second quarter, down from 6.0% last year. The company's share of the commercial market was a mere 2.6%.

In Europe, however, Packard Bell is the No. 1 brand in the U.K., French and Belgian consumer markets, said Graham Hopper, Packard Bell NEC Eu-

rope's managing director in the U.K.

Worldwide for this year's third quarter, combined shipments of NEC and Packard Bell-branded PCs made parent company NEC the world's No. 5 PC vendor, according to IDC. However, according to San Jose-based market research company Dataquest, North Sioux City, S.D.-based Gateway Inc. is in fifth place, ahead of NEC. ■

Market Share Drop

Packard Bell NEC market share, based on U.S. PC shipments

YEAR	Q1	Q2	Q3
1989	6.0%	6.0%	6.0%
1990	6.0%	6.0%	6.0%
1991	6.0%	6.0%	6.0%
1992	6.0%	6.0%	6.0%
1993	6.0%	6.0%	6.0%
1994	6.0%	6.0%	6.0%
1995	6.0%	6.0%	6.0%
1996	6.0%	6.0%	6.0%
1997	6.0%	6.0%	6.0%
1998	6.0%	6.0%	6.0%
1999	6.0%	6.0%	6.0%
2000	6.0%	6.0%	6.0%
2001	6.0%	6.0%	6.0%
2002	6.0%	6.0%	6.0%
2003	6.0%	6.0%	6.0%
2004	6.0%	6.0%	6.0%
2005	6.0%	6.0%	6.0%
2006	6.0%	6.0%	6.0%
2007	6.0%	6.0%	6.0%
2008	6.0%	6.0%	6.0%
2009	6.0%	6.0%	6.0%
2010	6.0%	6.0%	6.0%
2011	6.0%	6.0%	6.0%
2012	6.0%	6.0%	6.0%
2013	6.0%	6.0%	6.0%
2014	6.0%	6.0%	6.0%
2015	6.0%	6.0%	6.0%
2016	6.0%	6.0%	6.0%
2017	6.0%	6.0%	6.0%
2018	6.0%	6.0%	6.0%
2019	6.0%	6.0%	6.0%
2020	6.0%	6.0%	6.0%

Jana Sanchez at the IDG News Service contributed to this report.

'Legacy' ERP Affects Decision Support

SAS CEO: Avoiding IT input ill advised

How should companies use data modeling tools and their corporate data? Computer-world reporter Lee Copeland posed that and other questions to James H. Goodnight, president and CEO of decision-support and data warehousing vendor SAS Institute Inc. in Cary, N.C.

Q: What's the most important thing information technology leaders can do to ensure their companies are in the best competitive position?

A: One of the biggest things is in data warehousing, establishing the structure and teaching people how to use it. IT departments can manage the actual reporting function and then move that function out to the different departments and divisions within the organization.

Q: What's the best way to start?

A: The vast majority of clients have started small with a division and provided them with the data and reporting tools

that they needed. We've seen the failure of data warehousing with a two-year data modeling approach where the rollouts are gargantuan. It's best to work with each individual department at a time.

Q: What's the biggest problem area your customers run into when they implement data modeling tools?

A: When they try to do data modeling for the entire company and discover that they have different data tables out there. It's such an enormous waste of time. You can have success... if you start small and satisfy the needs of one group after another.

Q: How clients have surprised that their enterprise resource planning (ERP) data couldn't support decision-making as they thought it would?

A: There were a lot of what we call "shiny shoes" people selling ERP. There's no doubt about it, because they went into the highest level... and convinced the CEO. And quite often, the CEOs made the decision without getting IT's input. The CEOs were tired of not getting anything out of IT and decided

to go around them. What I like to refer to current ERP systems [as] is new legacy data. The nice thing is that we can read it all.

Q: It's got to be hard to spend millions to implement these systems, then have to go to the chief financial officer and ask for money to get the reports you really wanted.

A: That's a competitive advantage to us, because a lot of companies have been burned when they put in their ERP systems. We have some of the Big Six as partners, and sometimes when we ask them to help out on an account, they say, "We can't get back there," because they were the ERP implementers and are no longer welcome in that shop.

Q: How do you think IT leaders can make an impact in the next part of the decision process?

A: The IT shops have access to all the data available in a large company. If they want, they can take it upon themselves to do some data mining, then go to marketing and say, "Here are some facts about the customers that are not likely to buy from us again," or say, "This is the profile of our best customers." IT can start initiatives like that, working with the company data to try to do better forecasting and modeling. ■



GOODNIGHT: Data warehouse success means starting small

MISSION: You're going home. At United Health Services, that sound of success is heard more quickly these days. How? A Lockheed Martin network that's turning paper systems into digital systems. The result: medical data that appears when it's needed, where it's needed: at bedside, in the lab, or viewed by physicians in several locations at once.

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Client List

SkyTel

PMSC

USG

United Health Services



Lockheed Martin

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MARK HALL

Protecting privacy

THERE ARE PLENTY of people who bad-mouth, even hate, their bosses. But there seems to be an inordinate number of them in government. They wouldn't trust a bureaucrat to sharpen a pencil. They reject the idea that Uncle Sam should get involved in privacy issues. To them, the only

solution can be found in the marketplace. They're wrong.

Just last week, Orson Swindle, a commissioner at the Federal Trade Commission, expressed his disdain for Washington bungling and his affection for free enterprise. Swindle is a bona fide war hero and longtime political appointee from the early Reagan administration. But his faith in the private sector blinds him to the problem of privacy.

Swindle said, "Good privacy practice is good business." True. But getting the goods on your customers seems to be even better.

The latest company caught with its hand in the invasion-of-privacy cookie jar was RealNetworks, which last week was caught tracking users' listening habits without their knowledge. No problem, said Swindle; he had just been to Microsoft and was shown privacy-protection tools. Small comfort from the company that has had both hands and feet in the privacy cookie jar. Remember when it was caught secretly evaluating the contents of your disk drive?



Then there's Intel, which changed a privacy-related policy when it unveiled its Pentium III chip last month. It has stopped advising computer makers to turn off the unique microprocessor serial number, which some believe can be used to trace where each PC goes online. Intel now leaves it entirely up to manufacturers.

Like it or not, Swindle's boss will have to be a partner, even a leader, in the online privacy debate. At a minimum, the government will need to establish a person's privacy rights so the private sector will be able to do business with the European Community, which takes a dim view of companies gathering information about its citizens without their permission. Without such government involvement, it's possible U.S. companies will lose access to a trading bloc larger than North America. There are too many examples of U.S. companies violating user privacy for the EC to ignore. And there are too many even for boss-hating public servants to overlook, too. ■

JOHN GANTZ

Logistics enters IT's agenda for e-commerce

DID YOU KNOW that, by some accounts, logistics is a \$900 billion industry and a full 11% of gross domestic product? I don't know if I believe that, but with the current rave for e-business, whatever size it is, it's going to get bigger.

Forget the computers and storage you're going to need for your new dot-com company. How are you going to get your products from here to there?

If you're selling simple goods, you can always go the way of Amazon.com — through the U.S. Postal Service, UPS or FedEx. These outfits will be glad to take your shipping worries off your hands, especially if you have a lot of volume.

But the logistics industry itself is caught up in the e-commerce miracle. Now, thanks to the new technology, firms traditionally handling one area of logistics want to handle more. Your trucking company wants to sell you warehouse space or tell you where to build your own. Your warehouse firm will help you handle incoming orders and hire your shippers. The company that auctions off your returns will be glad to find you a trucking company to pick them up. And so on.

There are even cyberspace start-ups — like Electron Economy and Yantra.com — that are willing to handle your entire logistics function, from order fulfillment to warehouse, transportation and returns management, without actually owning any real physical assets.

The old-line companies are getting into the act as well. J. B. Hunt is a \$2 billion trucking company that is growing at 10% per year. Its logistics services subsidiary is a \$700 million subset growing at 40% and making more profit. Other well-known names offering logistics service outsourcing include Ryder, UPS, Fingerhut and Schneider. Even the good old Postal Service has hopes of eventually delivering groceries, flowers and other nontraditional mail items to consumers.

In this e-business feeding frenzy, as elsewhere, the virtual companies are pitted against the old-line suppliers. Everybody wants your business. The new companies offer Web-based access and hands-free management of the grubby details of finding carriers and negotiating rates. The old-line companies offer years of experience handling



details like physical delivery, taxes and customs.

The issue for you will be in knowing whom to choose. Unfortunately, if you're the one with responsibility for the computers and Web sites that support e-commerce in your firm, you may be called upon to make decisions about logistics you've never faced before. Just as your Web site is now part of your customers' experience with your product, physical delivery will now be a key part of that experience.

Better think about it. Your mail room isn't. ■

DAVID MOSCHELLA

U.S. patent law puts the Web economy at risk

IT'S HARD NOT to be at least a bit disturbed and/or annoyed at the recent spate of Internet patent lawsuits. Can we really take seriously Amazon.com's claim that its I-Click express checkout capability is a unique and patent-worthy invention that Barnesandnoble.com (and, I assume, everybody else on the Web) shouldn't be allowed to imitate? I wonder which supermarket chain first "invented" the "eight items or fewer" express lane.

Equally odd is Priceline.com's claim that its somehow owns the idea of letting consumers place online bids for various flights, hotels, etc., and that Microsoft (and again, I assume everyone else) shouldn't be allowed to provide any similar services without Priceline's permission.



DAVID MOSCHELLA is an author, independent consultant and weekly columnist for Computerworld. Contact him at dmoschella@compuserve.com.

Call me old-fashioned, but I didn't think anyone was allowed to own an idea in America. Should Dan Bricklin, creator of Visicalc, have been allowed to own the idea of a spreadsheet?

And yet as troublesome and dubious as these and similar lawsuits seem to be to just about everyone,

their emergence isn't really Amazon's or Priceline's fault. The fact is that the congressionally controlled U.S. Patent Office, with the support of the U.S. federal courts, has said that software processes can, in fact, be patented.

Now that this misguided policy has been established, due diligence demands that companies apply for patents whenever they think they might get one. And as any lawyer will tell you, once a company receives a patent (as both Amazon and Priceline have), it had better take steps to enforce it.

This whole issue was created by our government, which now hopes to globally expand its folly through the World Trade Organization and World Intellectual Property Organization. Consequently, only a reversal of current U.S. governmental thinking can prevent these still-isolated incidents from becoming a serious drag on the Web-enabled economy. For even if Barnesandnoble.com or Microsoft wins its respective case, the real problem will not have been addressed.

What's really weird about all of this is that appropriate government policy is so clear and obvious: Software should be subject only to copyright, not patent, laws. Accordingly, no one should be able to own the rights to the underlying idea or function of a piece of software; only the actual code, or expression, should be deserving of governmental protection.

In other words, Amazon and Priceline could sue only if Barnesandnoble.com or Microsoft had actually copied their respective code, and clearly they haven't.

Additionally, we should always keep in mind

that the primary purpose of both patent and copyright law isn't to protect the rights of inventors and authors, but rather to promote societal learning by assuring that inventors and authors have sufficient incentives to create and disseminate their ideas.

This isn't just a semantic difference. Would either Amazon or Priceline really want to make the case that it would never have developed I-Click or consumer price naming without assurances of intellectual property ownership? I don't think so.

It's easy to view these suits as frivolous, and, indeed, they both will likely be dismissed or settled out of court. If not, both Barnesandnoble.com and Microsoft can certainly take care of themselves. But not everyone has their resources.

Thus, until this whole patent mess is sorted out, many Web entrepreneurs will be far more vulnerable to intellectual property lawsuits than is either useful or necessary.

Perhaps we should even watch Amazon and Priceline for making this danger so clear to us all. ■

READERS' LETTERS

Ranking recalculation reveals improvement

I AM WRITING with regard to Computerworld's ranking of the top 25 Techno-MBA degrees (Business, Sept. 27).

The Boston University School of Management was ranked 24th in the 1995 rankings and 28th in the 1997 ranking but did not appear on the 1999 list.

Clearly, we were surprised, as Boston University School of Management has one of the strongest programs in the nation and the data we submitted in 1999 was more impressive than the data we submitted in 1997. The most dramatic improvement was in our GMAT score, which was some 40 points higher in 1999 than it was in 1997.

As you know, students, recruiters and prospective students take these rankings very seriously in forming opinions about the numerous programs available to them. It is of the utmost importance to the school that we clarify what has hap-

pened with regard to our ranking. Louis Latul, Dean of the School of Management Boston University Boston

EDITOR'S REPLY: We did indeed make an error in our calculations and inadvertently omitted Boston University's GMAT score of 648 during our data-entry process. By failing to include that score, we ranked the BU School of Management in 27th place when it should have earned 15th place.

Computerworld apologizes for the mistake, and we have updated the Techno-MBA ranking chart on our Web site (www.computerworld.com/mba/) to reflect the school's deserved place at No. 15.

Speak English, not jargon, to end users

LIKE Computerworld's jargon/Judge, I get upset with people who use jargon excessively.

I am a mechanical engineer by education, but

I was a self-taught programmer for about six years in the '80s.

At one point, I was at a plant for a period of time doing some custom software. I had a good relationship with one of the users of the software that I had done. She asked me to explain how a part of the program worked.

After I finished the explanation, she said that I wasn't like any other programmer that she had ever talked to. At first I was slightly offended, but she explained that she meant I took the time to speak to her in English and not computerese. As a result, she became a strong ally and was always helpful and supportive.

I come in contact with people with all levels of technical sophistication.

The best ones, the ones that people like to be around, are the ones who interact with all as peers, regardless of their relative knowledge base.

Don Hopkins
Project engineer
Corning Inc.
Corning, NY
Hopsong05@corning.com

Happy New Year, Y2K

YOU'VE HAD a couple of stories on airlines cutting back on flights over the new year because of lack of demand.

One thing you haven't mentioned is the reason for the lack of demand. It's not because people are concerned about flying that weekend; it's because most people have to work! Most companies are now developing plans to have all staff available over that time period to handle whatever issues may come up and to verify that all is well.

Donna Clay
Senior manager
Spectrum Consulting Division
Maximus Inc.
Austin, Texas

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Allen E. Alter, columns editor, Computerworld, PO Box 917L, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 875-9537. Internet: letters@computerworld.com. Please include an address and phone number for immediate verification.

BILL LABERIS

Internet better clean up its act — before Feds step in

AS THE INTERNET becomes an all-pervasive force in our business and personal lives, it seems inevitable that a strong case will eventually be made for regulation, federal government style.

I doubt our elected heroes in the nation's capital will seriously approach the Internet regulation issue until after the next general election. For now, Internet regulation is just not a big deal. On the whole, our lawmakers seem content to stay away from the issue. There is no great public outcry for regulation yet, and few politicians want to risk offending the deep-pocket contributors from the IT industry, who tend to be strongly antiregulation for obvious self-serving reasons.

But overall, our lawmakers seem to be following, at least in spirit, the same policy as the Canadian government. There, the regulators decided to unconditionally exempt the Internet from regulation, even though they determined that TV and radio on the Web still qualify as broadcasting, which is highly regulated. The Canadians feel that existing laws and "self-regulation" are in place and that specific regulations would hamper Internet industry growth.

But there are forces and events at work that will bring the issue of Internet regulation much closer to the front burner in the U.S., maybe a lot sooner than our legislators would care to see. Consider the following:

In 1998, less than 15% of Web sites posted privacy policies. While that number has rocketed to 65% today, there are still a lot of sites out there that do pretty much whatever they want with information collected about consumers visiting those sites.

The online sales tax issue is a mess. For example, some sellers of PCs and peripherals charge sales tax automatically if the buyer deals through the vendor's business unit but charge no tax if the buyer deals through the home sales division, leaving the payment of sales taxes up to the buyer. As though buyers would have a clue about how to pay sales taxes not collected by the vendor!

Recent reports charged that the Internet was

being used as a medium to auction off human body parts like spare kidneys and the reproductive eggs of supermodels. Though the auctions turned out to be almost certainly fraudulent, you have to wonder if such hoaxes really act as trial balloons for the real thing down the road.

Issues of morality, consumer privacy and taxation are seldom treated lightly. As these and other issues surface as the Internet proliferates, calls for strict controls are imminent.

Do we want the federal government instituting those controls? Earlier this year, a nonprofit group comprising IT industry leaders, educators and others formed to tackle the issue of domain name management, ostensibly to pre-empt politicians from doing the same.

This is what's needed today regarding Internet regulation: a pre-emptive positioning strike designed to head off our ready-fire-aim politicians. Such a group should represent a range of interests but certainly should include industry leaders, educators and perhaps even religious leaders — anyone but politicians! Surely, no good will come from choking regulations that stifle the development of the Internet economy. But some measure, or at least consideration, of self-regulation seems completely appropriate. ▀

WILLIAM ULRICH

Ready or not, Y2K won't go away for any of us

I WAS BLISSFULLY sequestered from the year 2000 problem last week

while working on the creation of a new organization in an unrelated field. Like my fellow consultants, I have been knee-deep in the year 2000 since the beginning and relish the thought of focusing my efforts on different pursuits. The thought of not hearing about Y2K for a few days was a relief. When I got back to town, reality returned with a vengeance.

I am in the midst of a research project that requires digging through year 2000-readiness statements for dozens of multinational corporations. Many companies are addressing the issue effectively, but their disclosure statements read like something out of a legal nightmare. Perhaps this is because no one can guarantee the stability of systems, equipment, facilities, infrastructures,

interfaces, suppliers or business partners as the year 2000 unfolds.

The most interesting aspect of this research focused on the companies that really aren't prepared. Several organizations doubled or quadrupled Y2K budgets over the past year. Others have done little supply-chain research beyond the obligatory letters. Some companies have contingency plans, but many more are still working on them. Most troubling are those companies claiming to have contingency plans limited to anticipated problems, like unprepared suppliers. Maintaining business continuity in the face of the unexpected is a core principle of every good contingency plan.

One thing my research assistant and I discovered is that few companies are willing to speak about Y2K directly. Forget free and open disclosure. Forget about trying to convince us they are in good shape. Many people said they aren't allowed to have conversations with outsiders — period. No problem. We checked their Web sites, Securities and Exchange Commission (SEC) disclosure statements and several other sources. The information we found was fascinating. Unfortunately, few people have actually dug this deeply into the year 2000 compliance status of this many companies.

One or two dogs in the group would be no big deal. But when company after company showed up as a high-risk candidate, my concerns began to grow. As I sat in my office contemplating the lack of preparedness at these companies, I received a phone call from a friend who markets Y2K remediation services. He told me that his factory has more year 2000 remediation work now than it ever had before.

One company recently sent in 50 million lines of source code to be fixed by year's end. More surprising was the allegedly compliant financial institution that just sent in 20 million lines of code to be made compliant. My friend mentioned these facts in passing. He wasn't trying to impress me. The fact that companies still have millions of lines of code to fix reinforces the fact that some very large companies are in serious trouble.

The underlying theme found in these disclosure statements, regardless of how well companies have prepared themselves for the year 2000, is that their executives take Y2K more seriously than most of the rest of us. Virtually every company is concerned about how their suppliers and business partners will fare. And all of them state that Y2K might materially impact their ability to deliver products, services and strong profits should something go wrong.

Cynics claim that companies are bound to consider Y2K from a worst-case perspective. Spelling out worst-case scenarios in your SEC disclosure statement gives a company legal leverage later. Maybe, but I believe executives are being forthcoming about the risks. In spite of the happy talk from industry associations, the federal government and public relations firms, the year 2000 won't go away. Fortunately, most corporations already know this. It's too bad that the rest of the world doesn't. ▀



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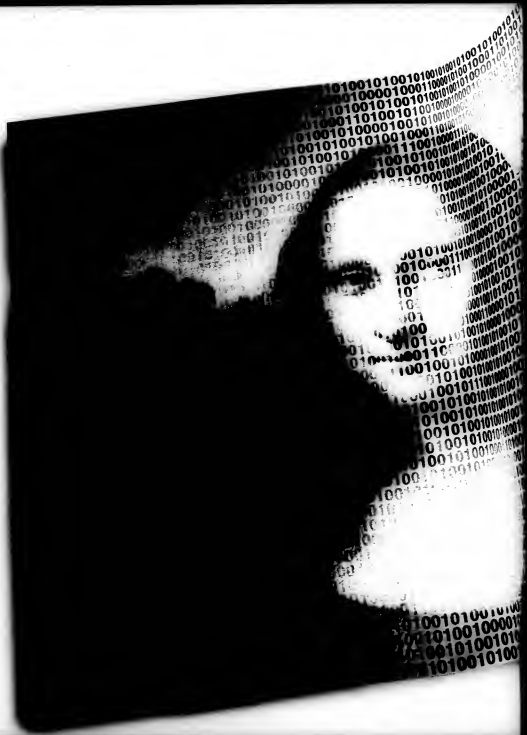
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BUSINESS

QUALITY IN HAND

Under pressure from the U.S. government to record more precise quality assurance data, a Boeing plant is replacing clipboards with Palm handhelds, cutting average inspection times and increasing the number of inspections and amount of data collected. **» 38**

TEST, TEST, TEST

To avoid ERP disasters like the one Hershey recently went through, users recommend tests, tests and more tests. It's not enough to put one module through its paces; you have to make sure transactions make it through the whole system quickly. **» 38**

GO EAST?

It's been 10 years since the Berlin Wall fell. In that time, primitive, expensive communications networks and regulatory gridlock have discouraged adoption of modern IT-based business practices in former Soviet bloc countries, but the technological infrastructure in the region is now ready to support up-to-date IT, with a few precautions. **» 42**

EAGER FOR Y2K

Many Y2K teams want to be in the office when the New Year rolls around, eradicating management concerns about getting adequate coverage over the holiday. After spending months fixing the problem, Y2K workers say they want to see how things turn out. **» 46**

NEANDERTHALS

There are still IT managers out there who don't know how to align business and IT and have no concept of customer service. That proves that not all IT organizations are partners with the business side of the house, Peter G. W. Keen warns. **» 41**

Y2K WARRANTIES

Jan, I am too close to do deals without Y2K-compliance in the warranty, advises Joe Auer. When its vendor was acquired, one company he worked with nearly got stuck with language too vague to do any good. **» 54**

UNREASONABLE JOB REQUESTS

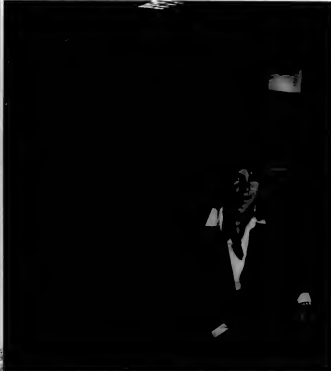
Give me free parking; make me a partner. Unreasonable or unusual? Job requests that may be outrageous to one hiring manager could seem only unusual to another. Either way, getting the right person may require some innovative compromises. **» 44**

KEEPING THE SHELVES FULL

It's hard to quantify the costs of poor inventory allocation, but IT can help plan just the right flow of widgets to keep you from losing customers who are hungry for your products. IT can also keep you from drowning in inventory. See QuickStock. **» 52**

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Opinion: Peter G. W. Keen 41



HOW TO REEL IN FOREIGN TALENT

HIRING AN H-1B VISA IT PROFESSIONAL ISN'T EASY, as Suzy Nisbet (above) can attest. These days, it's taking the INS twice as long as usual to process applicants. And there's heavy competition for these job candidates: About 60% of all H-1B visa professionals are grabbed up by only 20 companies. Luckily, there are some ways to cut through the red tape and increase the chances of hiring one of these workers.

48

Handhelds Help Boeing Boost Quality Inspections

Speedier process may allow fivefold rise in number of quality checks, data collected

BY MATT HANBLIN

INSPECTORS AT The Boeing Co. manufacturing plant in St. Louis have traditionally recorded data on the quality of manufacturing of F-14 and F-15

fighter planes on paper and have then had the data entered manually into a huge database.

Facing increasing pressure from the U.S. government for more precise quality assurance data, one Boeing plant is replacing clipboards with Palm IIIx handhelds from Santa Clara, Calif.-based Palm Computing Inc. The 26 inspectors using the handhelds say they have cut average inspection times by half. And the company saves even more time by uploading the data that inspectors enter, rather than having it typed in from written reports.

Boeing plans to increase the number of inspections it can do in hours of improving quality, said Michael Heffernan, manager of assembly inspection at the St. Louis plant.

"We know it's the wave of the future.... We're pretty excited about it," he said.

Boeing is one of a growing number of users that see a role for handhelds beyond the personal information manager functions that made PalmPilot popular, said Gerry Purdy, president of Mobile Insights Inc. in Mountain View, Calif.

"You hear a lot of buzz about using handhelds for tests or a small group of workers, but this is one of the first potentially major deployments by a large company I've heard about," said Jill House, an analyst at International Data Corp. in Framingham, Mass.

Heffernan said his team got the idea from NASA officials, who use the devices to oversee and inspect space shuttle development. It has proved so popular within Boeing, he said, that teams from plants in Mesa, Ariz., and Long Beach, Calif., have visited St. Louis to find out how to set up the systems in their plants.

An average paper-based surveillance of a standard manufacturing process, such as determining whether an operator

is properly drilling a hole, takes 58 minutes, but users with handhelds have reduced the time it takes to an average of less than 30 minutes.



BOEING inspectors have reduced inspection times by as much as half by using handhelds

During quality checks, inspectors might typically be prompted to answer 20 questions, inputting 50 different answers with a stylus on a pull-down screen, tapping on the screen-based keyboard or inputting with the Palm's Graffiti handwriting-recognition script.

Shortcuts are possible because much of the inspection format is already loaded into the handheld and it captures standard information such as time,

date, location and the inspector's name automatically.

The St. Louis plant started its own testing last January, starting with one Palm IIIx device. The results were promising enough to prompt Heffernan's team to build a data collection application using the development shortcut tool Satellite Forms from Puma Technology Inc. in San Jose.

Boeing information technology staffers are installing a new Oracle database in 172 more devices to better handle the data. And the company may buy even more handhelds if it can roll out more accounting or production applications and link the devices to a wireless LAN to further automate the data-gathering process, Heffernan said.

Inspectors said they like using the devices. "It's been working super," said Dave Boering, page 40

Making Planes

The St. Louis plant is using handhelds to boost quality assurance during production of these aircraft, among others:

C-17 GLOBEMASTER II



Fastback: With a payload of 160,000 pounds, the C-17 can take off from a 2,600-foot airfield, fly 2,400 nautical miles, be refueled in flight and land on a small austere airfield in 3,000 feet or less.

F-15 EAGLE



Fastback: F-15s destroyed 33 of the 35 fixed-wing aircraft Iraq lost in air combat during Operation Desert Storm.

F/A-18 HORNET



Fastback: The F/A-18 Hornet is the official aircraft of the U.S. Navy's Blue Angels flight demonstration squadron.

ERP Requires Exhaustive Full-System Tests

BY CRAIG STEDMAN

For companies that want to avoid a harrowing ERP rollout like the one that's now plaguing Hershey Foods Corp., the advice from experienced users is simple: Test, test and test some more.

Hershey is having trouble processing orders through a new \$12 million enterprise resource planning (ERP) system, limiting its ability to ship candy to retailers during the crucial Halloween selling season [Page One, Nov. 1].

Setting up an ERP system that controls everything from order entry to shipping and billing, like Hershey's does, is a notoriously complex job. And it can take months to do the kind of testing that's needed to make sure business transactions flow properly through the software, users said.

For example, The MacManus Group — an advertising and public relations agency in New York — spent five months running tests before it began rolling out PeopleSoft Inc.'s finance and project management applications in September, said Jim Dileo, the firm's senior vice president of worldwide information technology.

Using tools developed by Mercury Interactive Corp. in

Sunnyvale, Calif., MacManus tested the system's ability to handle different transaction workloads. It also wrote test routines that emulated real transactions across nine different business units in order to prove that the software would produce valid results.

The testing consumed about 20% of the project budget and involved about 35 end users and IT staffers or consultants, Dileo said. For the IT workers, it was a full-time job. "It's so important to get this stuff done right," he said. "You just can't have people flipping in and out of the testing effort."

Be Prepared

Even with all that work, MacManus still ran into some glitches after going live. For example, performance bogged down at one division because its LAN didn't match the test configuration. But the company managed to avoid any "catastrophic surprises," Dileo said.

Software analysts said testing is one thing that new ERP users don't want to short-change themselves on, especially if applications from multiple vendors are involved.

Dave Boering, an analyst at AML Research Inc. in Boston, previously worked as a

consultant on big rollouts of SAP AG's R/3 software at Lucent Technologies Inc. in Murray Hills, N.J., and at The Gillette Co. in Boston.

Lucent had more than 70 business users spend all their time testing its system for six months, while Gillette had 150 workers run test transactions during a four-month period, Boulanger said. "In essence, we were challenging them to break the system," he added. "It's better to do that before you go live than after."

Green Mountain Coffee Inc. in Waterbury, Vt., learned that lesson after it installed an initial batch of PeopleSoft's applications two years ago.

"I'm sure everyone would tell you we did insufficient testing," said Jim Prevo, Green Mountain's CIO. The company tested transactions separately but didn't flow them all the way through the system to see if everything would get properly accounted for, he said.

Luckily, the system didn't fall apart. But Prevo said the coffee roaster had to delay a second phase of the project while it fixed a variety of problems that cropped up. After that, Green Mountain developed a more detailed testing program, he added. ■



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High-Availability Services Emerging

Aimed at eliminating e-business downtime, increasing online sales

BY LEE COPELAND

ONLINE CUSTOMERS WON'T wait long for service online. Instead, they bolt, leaving half-finished orders and virtual shopping carts in their wake.

To keep downtime from driving away customers, a growing number of information technology shops are signing up for high-availability service contracts to keep their on-site electronic-business applications up and running.

"IT is looking for vendors with the

capability to examine pieces of the infrastructure and applications, to collect data and to maintain these [electronic-business] operations," explained Richard L. Ptak, an analyst at Hurwitz Group Inc. in Framingham, Mass.

IT director Keith Spitz at Rogue Wave Software Inc. signed up for a high-availability contract five months ago when use-plausible outages on the Boulder, Colo.-based software development firm's on-site Onyx customer service application reached up to two to three hours per week.

"We have a database administrator on-site, but there are 16 other hours in the day," said Spitz. "If it's not up, we're not selling to our customers."

Spitz hired StrataSource Inc. in Menlo Park, Calif., to remotely monitor the

application and provide service support should it go down.

"E-commerce, collaboration and e-mail applications all require availability, so we expect to see a market develop around servicing them," said Chris Hoffman, an analyst at International Data Corp. in Framingham. Mass. StrataSource, BMC Software Inc. in Houston, Hewlett-Packard Co. and Unisys Corp. in Blue Bell, Pa., already offer high-availability packages.

"You're hiring a watchdog to remotely monitor your IT environment to head off problems before they occur," said Hoffman. "This is a new class of firm we're seeing that's focused just on availability because the Web conveys this impression of being always out there and always going."

The virtual administration offered by high-availability contracts cuts costs in

part by decreasing staffing costs. Contracts range from \$2,000 to \$10,000 per month and offer until it's up-again support when problems occur and application watchdogs to ward off potential disasters.

Even so, these uptime packages don't fit every organization's need. CIO Fred Farmer opted to end application maintenance on Memphis-based ResortQuest International Inc.'s extensive Web hospitality applications. Farmer found that restrictions on changing the resort's applications in the service agreement presented too much of a hassle to continue.

"We decided that the best way to meet our service-level objectives was to outsource maintenance on the operational platform level and hold it inside at the application level," Farmer explained. ■

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Continued from page 38

Boeing

Jobe, an assembly inspector at Boeing who has used the Palm IIIx since July. "It's tremendously more convenient than using paper and has streamlined my processes."

Jobe said it took him all of 10 minutes to learn to use the device, which cuts about a third of the time off one of his inspections. Some users balked at the Palm III because it was hard to read the screens in the harsh light of a production floor, but the updated screen on the Palm IIIx was easier to read, Jobe said.

Boeing made the move to handhelds to satisfy government inspectors, who want quality assurance inspections documented throughout the production of multimillion-dollar military planes, Heffernan said.

But the devices also make that painstaking process more cost effective, he said. Although Boeing hasn't tabulated the cost of the handhelds and application development, Heffernan said he expects a 3-to-1 return on investment in a year, based on a cost of approximately \$400 for the machines with rugged cases, plus \$995 for the Satellite Forms enterprise tool kit, which includes runtime fees for 10 users. Puma officials estimate that each additional Satellite

Forms user costs an average of \$50.

Boeing is also thrilled that it can get inexpensive, off-the-shelf machines to do so much, Heffernan said. "The price is right, since you can spend \$6,000 on a handheld but the Palm device will do what you need for about \$400." The devices also stand up to the rigors of the shop floor. Two Palm devices have been dropped in 10 months, with a replacement cost of \$300 apiece. ■

SNAPSHOT

Manufacturing Money

Average annual compensation for end users involved in supply-chain and production management

Supply-chain director	\$101,500
Materials management director	\$78,700
Distribution and logistics manager	\$78,400
Manager of materials management systems	\$78,300*
Inventory management director	\$74,400
Purchasing contract administration manager	\$71,000
Quality control director	\$71,300

*Partially an IT job

Source: 2,340 U.S. users surveyed this year

WORKSTYLES

What It's Like to Work at... Hasbro

Interviewer: Dan Rattigan, manager, SAP Competency Center

Company: Hasbro Inc.

Main location: Pawtucket, R.I. (30 minutes north of Providence)

Number of information technology employees: 90 in the U.S.; a separate IT group supports European operations

Number of employees (end users): 9,000 worldwide

Tenure with the company: 11 years

Division: Business casual

Workday: Official business hours are 8 a.m. to 5 p.m.

"I've been here a lot of flexibility. Typically, when we're reaching the end of a project, we pull together as a team and do what it takes to get the job done...."

"It definitely gets busy as we get closer to the holiday season."

Kind of offices: Mostly cubicles, with some offices. The IT group has its own building, with a pond out front where geese graze.

Decor: A Star Wars lighter plate hangs from the ceiling in the reception area, and a large toy train carrying Hasbro products chugs through the lobby.

"The thing that really jumps out are the toys and the pictures of toys—Nerf ball basketball hoops, Furby dolls and lots of action figures. That's the benefit of being in a company where my kids love to come here."

Ergonomic devices: "We have an ergonomics program where people can get reviewed, and if they need something, we'll get it for them."

Must-have people carry beepers? Cell phones? A few, but not most.

Percentage of staff that telecommutes on a given day: "We really don't telecommute, but there's a lot of flexibility if you have a sick child or [other personal] situation. If you're not up for it, you can sit in from home."

On-site day care? No, "but I think we try to be family-friendly."

How safe? With flexible hours—a lot of people take advantage of that. In the summer, we work longer hours for four days and a

half-day on Fridays. And the other thing that's really nice is a new program called Team Hasbro. If you volunteer with kids, the company will support you with four hours off each month to do that. I got a letter just last month [from a woman] about one of my staff members who was coaching a soccer team and what a big influence he had on her child, and that was a great story to hear."



In-house cafeteria or food service: Yes, each facility on campus has its own cafeteria with hot and cold foods. **Cafeteria rating (on a scale of 1 to 10, 10 is best):** 8. "I like the pizza."

Other on-site amenities: Dry cleaning, auto services and photo finishing, also company-subsidized memberships at a local health club.

The one thing everyone complains about: "We don't get to play in the Fun!z. That's the research and testing center, where kids try out Hasbro toys. But you can go and watch them play, and you can also bring your own kids to it."

Favorite item in candy dish: Jelly beans, "with a seasonal nod to candy corn right now."

Office mascot: Mr. Potato Head

Little perks: "Being able to bring home test toys to my kids, like a Play-Doh Fuzzy Pumper. Barbie Set! I also get to help out at Toy Fair [an annual industry event where new toys debut] a couple of times, and it's exciting."

Last companywide or department perk: Employee Appreciation Day. "We had a [charity] dunking tank, where you could pay to dunk your favorite co-workers."

Would employees feel comfortable e-mailing the CEO, Alan Hannenberg? "Sure. In fact, you could just talk to him in the hallway. We have a very open culture."

Quote: "I tell my kids that I work for Santa's elves. Before, I worked at an insurance company, and I couldn't have explained to my kids what I do. Here, I can, and they understand."

—Leslie Goff

The monsters among us

PETER G. W. KEEN

LET ME INTRODUCE YOU to Edith and Richard from IT. It'll have to be in print, not in person, but believe me, you'd rather not meet them in the flesh. Both need personality transplants and have the social skills of Dracula, but without the charm. I wish they were stereotypes that I've invented, but, alas, they are real (although the names I've given them aren't). They work in IT as managers whose job is to "align" IT with the business.

I spent a truly dreadful day with them recently, and I realized that it's the Ediths and Richards that do so much damage to IT. I thought their type had largely disappeared from IT in the era of service, alignment and all the other efforts to bridge the IT-business culture divide. Business friends I talked with about the diabolical duo were surprised that I was surprised the IT profession still houses such people. One told me: "I have to question [the CIO's] judgment when he clearly doesn't care about how a few of his people make it clear that they think they're the greatest and the rest of us are idiots."

Richard's a Class A equal opportunity insurer. He has many faults, but humility isn't one of them. Richard sneers well and never says, "I'm not sure," or "I have a different opinion." Instead, it's straight to "You're wrong." He hates people who think they know everything because it upsets those like himself, who really do.

Edith originally comes from outside IT and makes sure you know it. She came to IT from marketing and clearly hasn't asked why marketing didn't beg her to stay. She's weak on business knowledge and truly worfeel on IT knowledge—and regards technical knowledge as a Bad Thing. Her pitch is that any mention of technology shows you're anti-business. By hiding out in IT, Edith can look like a business expert to IT folk. She's sublimely rude but subtler than Richard.

If Edith and Richard worked for, say, marketing or finance, they'd be fired fast. That they're in important IT positions in their company shows to me that smart, not relationship-building, still dominates IT. They clearly aren't held to account for their relationship (mis)behavior, nor do they feel any responsibility to represent IT. They are probably oblivious to the impact of their put-downs and rudeness. Just one Edith and one Richard can undo well-intentioned commitments

to partnership, account management and business analysts. IT is people, not technology.

The fundamental historical determinant of success and failure in gaining business advantage through IT has always been the relationships, dialogue and mutual understanding between its own culture, expertise and way of thinking and those of its clients—those folks too easily dismissed as "users." That means that one of the priority skills and responsibilities of everyone in IT is ambassadorial expertise—the ability to represent the organization and the profession.

How many IT pros are formally trained in, measured on and rewarded for their ambassadorial contributions? This isn't about charm school but professionalism. It should be a part of the professional profile and responsibility of IT personnel. What's becoming more and more clear is that the most effective roles in IT center on communication and the internal equivalent of account management. The shift is from technical tasks to business relationships supported by technology task experts, often from outside the organization. IT skills, rewards, training and recruitment need to center on these. In Edith's and Richard's (well-known) IT organization, they don't. So much for all its "We're partners with the business" verbiage.

Ah, well, if I felt this angry after just a day of Edie and Dick, I wonder how silently mad some quite important users in their company are. It's easy to say that Richard's dysfunctional self-presentation

The most effective roles in IT center on communication.



makes him his own worst enemy.

To borrow a quip from, I believe, James Whistler: "Not while I'm alive, he's not." ▀

Keen is chairman of Keen Education, as well as an author and consultant. His Web site is www.peterkeen.com, and he can be reached at peter@peterkeen.com.

A decade after the collapse of the Berlin Wall, IT in Central Europe, despite a legacy of bureaucratic bottlenecks, is catching up with the West By Gary H. Anthes

THE COLLAPSE of the Berlin Wall 10 years ago this month opened the communist countries of Central Europe to information technology-based business practices. Now Poland, Hungary, the Czech Republic, Slovakia and Slovenia are racing toward the 21st century, just steps behind Western Europe and the U.S.

Growing markets in the former Soviet bloc have provided tempting targets during the past decade for U.S. companies selling everything from cola to computers. But for much of that time, primitive and expensive communications networks and regulatory gridlock discouraged adoption of the modern, IT-based business practices of the West. Now, however, U.S. companies that have established a presence in the region say the technological infrastructure is ready to support U.S.-style IT, albeit with some special considerations.

"There has been tremendous and rapid change in all of Central and Eastern Europe in terms of IT," says John Palle, who directs Motorola Inc.'s activities in the region from offices in Wiesbaden, Germany. In particular, he says, those countries are privatizing and deregulating their state-owned telecommunications monopolies, and the resulting competition is bringing better service, more choices and lower prices.

The changes have been most profound in Central Europe, where governments are modernizing their economies and opening up protected industries to foreign competition in bids for membership in the European Union. The former East Germany has advanced especially rapidly, aided by its reunification with the more modern western Germany. Progress has been much slower in the Balkans and the countries of the former Soviet Union.

Disappearing — but by no means absent yet — are many of the maddening obstacles to doing business in state-run economies. "Ten years ago, to sell a new product there you'd have to go through a time-consuming and bureaucratic approval process," Palle says. "Now, that has been liberalized."

Graft is disappearing as well, says Robert Scott, vice president for IT at Procter & Gamble Europe BVPA in Brussels. "It is far less likely that a business venture will be held hostage by some official looking to grease [his] own palms," he says. "P&G simply refused to play those games, which on more than one occasion slowed our business plans."

"If you are an IT manager setting up operations here, things are very Westernized at this point," says Drew Weeks, a senior analyst at International Data Corp. (IDC) in Prague. "There are no technological



RONALD SZEC: His a professional to guide you through the Czech bureaucracy

IT Walls Com

DO

Thinking About Central Europe?

Advice for U.S. managers going into Central and Eastern Europe from those who have been there, done that:

Edward M. Roche, vice president, Concours Group:

■ "Make sure your IT vendors have a good service network there. Talk early and long with your telecommunications provider and get a clear understanding of provisioning and costs."

■ "Make sure you allow for 'nonlinear' barriers to trade, such as visa restrictions, restrictions on transborder data flow and export controls on encryption."

Robert Scott, vice president for IT, Procter & Gamble Europe:

■ "Do not wait. The uncertainty may be scary, but the opportunity to move rapidly without a legacy portfolio to slow you down is a real business advantage."

Voldas Samonis, specialist in emerging markets in Eastern Europe, University of Toronto:

■ "Take a longer-term view.... Do solid research well in ad-

vance, not when something goes wrong."

■ "Study local culture and entrenched ways of doing business, develop personal ties and local—not just central—government contacts. Technically educated people there have impressive abilities and are willing to work hard for some 20% to 30% of Western salaries."

Michal Klimes, central region sales director, Silicon Graphics SRO, Brno, Czech Republic:

■ "A U.S. company should not forget to include the best managers from this area in their top management. It helps to create a global company culture, and we are hard workers here."

Philip Beniac, Eastern and Central Europe director, SAS Institute:

■ "If you try to go in for the fast buck, people will not be interested in working with you. The IT communities are small and work on reputation."

Eather Dyson, chairman, EDventure Holdings:

■ "Consider outsourcing [software development]. You don't have to bring over hordes of Americans. And there's no need to bring your own toilet paper, either."

—Gary H. Anthes

barriers to doing business here."

Perhaps, but there are a few glitches to getting started, says Ronald Szoc, senior vice president at Washington-based Ruesch International, a global payments processor. When Ruesch recently moved into a brand-new office building in Prague, the landlord tried to pressure the company into using built-in Integrated Services Digital Network lines, even though they were too slow. And when the last tenant moved in and powered up its computers, it knocked out the building's anemic electrical system for two days.

And Szoc warns that it could still take a painfully long time to navigate the regulatory maze needed to get various business permits. An application might get stalled in the Czech bureaucracy for months, only to be returned with a note saying something was missing or incorrect, starting the process anew. Szoc recommends hiring a local lawyer or accountant to help guide the bureaucratic skids.

Ruesch's Prague office is tied to the company's currency trading center in the U.S. by a virtual pri-

vate network over the Internet. Czech workers enter orders and access databases in the U.S., and U.S. workers can access Czech files, says Radomir Zamurkovic, Ruesch's technology vice president in Washington. "They look just like they are here. It's totally transparent," he says.

But transparency has its price. Getting a leased telephone line takes three months in the Czech Republic, where there is still just one company offering them. And the 256K bit/sec. line that connects Ruesch's office to the Internet in Prague costs \$7,000 per month, compared with the \$1,000 to \$2,000 that Ruesch pays for 1.5M bit/sec. lines in the U.S.

Curriers in some countries offer X.25 data communication services over dedicated lines, but the long lead time to get the lines, plus volume-sensitive pricing for X.25, can make that option unattractive, says Edward M. Roche, a vice president at Concours Group in Houston. "So the trend now is to move to virtual private networks and the Internet as a means to set up corporate networks, particularly for non-

sensitive information," says Roche.

According to Roche, it's becoming common for Western companies operating in the region to use dial-up access at night to transfer files—daily sales figures, for example—from an Eastern European branch to a company's headquarters in Western Europe or the U.S.

Tech Skills Already There

Western businesspeople operating in the former Soviet Union and ex-Soviet bloc countries have high praise for the technical skills of workers there, where schools have long stressed engineering and IT. "The technical people are part of an international IT culture that speaks the same language and knows the same stuff, whether they are in Taiwan, New Jersey or Narayana Sibley," Roche says.

"A lot of East European programmers were much better than Western ones because they did things on extremely poor equipment; they could do awesome things with limited amounts of memory, for example," says Esther Dyson, chairman of EDventure Holdings in New York and one of a handful of venture capitalists operating in the region.

But, Dyson notes, the business skills of workers and managers there woefully lag those of their Western counterparts. U.S. companies setting up operations there won't need to offer much technical training for programmers and system administrators, she says, but they will need to make a significant investment in training people to use business applications.

Getting white-collar workers to adjust to IT is much harder in Eastern and Central Europe than it is in the U.S., Roche says. "People are being jerked out of an early-20th-century, paper-based bureaucratic model and moved into a postmillennium, information-based business process model."

But the absence of legacy systems at many companies has made it easier, in some ways, to move to the latest technology. "They are basically starting from scratch, but that gives them an opportunity to be far more flexible in taking best practices from the West," says Philip Beniac, Eastern and Central Europe director for SAS Institute Inc. in Heidelberg, Germany.

Nevertheless, IT hasn't yet really penetrated the fabric of Central and Eastern Europe business. Per-capita spending on IT ranges from a high of \$39 in the Czech Republic to \$4 in the Ukraine, according to IDC. It's \$1,300 in the U.S.

Poland has the strongest economy in the region but, according to a local poll cited by the U.S. Department of Commerce, only 30% of Polish managers use the Internet, compared with 85% in Western Europe. And just 44% of large Polish companies and 10% of smaller ones have Internet access.

E-commerce as it exists in the U.S. is practically nonexistent in the region. Relatively few people have credit cards, and those who do generally refuse to send their card numbers into the ether. The survey in Poland revealed that two-thirds of Poles hadn't heard of home banking, and 80% said they didn't want it.

Still, a few sophisticated applications are beginning to emerge. "I was in Poland last week and met with a company that automates pharmaceutical sales force systems," says Dyson. "It collects data on PalmPilots and sends it back to a server over the Internet. It's the equal of any application in the U.S. that I know of."

MORE ONLINE

Want to find out more about economic opportunities in Central Europe? Take a look at CEEDNet, the Central and Eastern Europe Business Information Center, sponsored by the U.S. Commerce Department.

www.usa.gov/cednet/cednet.html

e Tumbling



Unreasonable JOB

YOU WANT to hire a talented object-oriented developer who has the skills and experience you've been looking for. But he says, "Hire me, hire my roommate."

Unreasonable, or just unusual?

That all depends on how you look at it, says David Foote, a consultant who specializes in information technology workplace issues and the managing partner at Foote Partners LLC in Stamford, Conn.

"There is no such thing as an unreasonable request when it provides a sense of well-being and security to the employee and his or her family," Foote says, adding

that it's all relative to a variety of factors.

The following are 10 requests by IT prospects and staff members that employers either refused or for which they found innovative compromises.

Free Parking. No one gets a free ride, but apparently some people in metropolitan areas expect free parking.

"We've had people turn down jobs because we couldn't get them a spot," says Lisa Reinitz, manager of recruiting at Airborne Express' Information Technology Services group in Seattle. But in congested downtown areas, parking is seldom a feasible perk. Guaranteed spots near Airborne's headquarters "take years to get," Reinitz says.

Solitary Confinement. Programmers have a reputation for preferring to work in isolation, but a prospect at a large financial services company actually asked for an office far away from his co-workers. "He was extremely shy and didn't like to interact with people," recalls Scott Dinsdale, who was trying to hire him. Adding to the prospect's shyness was that, as a foreign national, he wasn't comfortable speaking English.

The request conflicted with the IT group's team-based culture, says Dinsdale, now executive vice president and chief technology officer at FirstLook.com Inc., a Los Angeles-based start-up. The candidate, a proficient systems programmer experienced in the key communications gear the company was using, possessed a hard-to-find skill set. So "we convinced him that it would be a good move for him, and we got him some language and personality-oriented training," Dinsdale says.

The Virtual Office. A Web developer at Send.com, an e-commerce start-up in Waltham, Mass., asked his managers to establish a satellite office in his hometown, which was 20 miles away. The reason: He was tired of the commute. Several co-workers lived nearby, and he reckoned they could all work out of the second facility.

As a start-up, Send.com wasn't ready to support an extra office, notes CEO Mike Lannon. Instead, the company moved to ease some hassles caused by the daily commute. For example, a chef cooks dinner for the staff every night. "That's a more practical solution," Lannon explains. "A satellite office would be a distraction, but you can't just say no outright, or you'll have a disconnect with the employee."

All-Summer Vacation. While IT workers often expect to put in long hours, it seems some also expect long vacations. But hiring managers are less than receptive. When candidates ask for four or more weeks off, "our answer is that even the CEO doesn't get that much time off," says Mike Gilfillan, CEO of ComputerJobs.com Inc., an online jobs site in Atlanta. Then he recommends they consider a consulting career.



ILLUSTRATION BY JEFFREY M. HARRIS

Unreasonable REQUESTS

Requested job perks can range from free parking to paid mortgages and everything in between. Here are 10 examples that really challenged IT managers. Some worked. Some required compromises. Some got candidates out the door
By Leslie Goff

Contract to Hire. After only two weeks on the job, a contractor that the Alliance of Computer Professionals Inc. (ACP) had placed on a data warehousing project asked the client to hire him full time. He was trying to buy a house and knew he had a better chance of closing if he was a permanent employee.

Such requests are often met with consternation by consulting agencies, which typically require noncompete clauses or finders' fees that dissuade direct employment offers. But ACP gave its blessing. "We felt like we were forming a long-term relationship by doing the right thing," says Sandra Foley, technical recruiter at ACP. "We don't feel we got robbed, because what goes around comes around." And ACP's graciousness paid off: Not only have the client and developer referred business to the agency, but the developer has also decided to go independent again and is returning to ACP.

Move Me or Lose Me. IT recruiters are grappling with unique relocation requests, from covering closing costs on a home to relocating extended family members.

Consider the out-of-town candidate who told an Austin, Texas-based com-

pany that he'd accept its offer only if it would move him, his roommate and his brother. The employer agreed, says Daniel Bloom, president of relocation specialists Daniel Bloom & Associates Inc. in Largo, Fla. Bloom says the average cost of moving a new hire who rents a home is less than \$11,000, whereas the average cost of moving a new hire who owns a home is \$37,835. If they were renters, it was a three-for-one move.

Tag-Team Foley. "Hire me, hire my buddy" is a common refrain, Foley says. She has arranged interviews with individuals only to have them show up with an unannounced partner.

One talented IT architect who specialized in object-oriented development projects brought along a colleague, insisting that Foley interview them together. They positioned themselves as a team, billing the candidate's associate as a "backroom operations specialist." But the friend's résumé showed him to have little more experience than rudimentary end-user desktop support.

"Even though the one person was very marketable, we walked away. As a team, they did not meet our standards," Foley says.

Another \$20,000, Please. As the IT skills shortage wears on, managers are fielding requests for huge salary increases from within the ranks and without. And in a hot market like Seattle's, Reinitz often hears salary requests of \$20,000 or more above the local norm. She has added a salary screening to her phone interviews to make sure expectations are in line with what she can offer.

"That's new," Reinitz says of the salary screening. But it's necessary, "because I find that some candidates are just not even in the ballpark of reality."

Make Me an Owner. In today's market, stock requests are de rigueur, but granting them isn't. A well-established, publicly traded company generally doesn't offer stock to candidates below the executive level. One candidate for a vice president job at Send.com wanted 30% equity in the company. Lannoo recalls. Lannoo declined, politely suggesting the candidate might be better off launching his own start-up.

"We were offering a single-digit percentage," Lannoo says. "He would have been our seventh hire, and he saw that as making him a company founder. Well, a founder is someone who slept on the floor and worked for six months

with no pay. And even founders rarely have that much equity."

The Moon and the Stars. A product manager at a privately held consumer goods firm was interviewing for a senior management job at Send.com when he delivered a long, costly list of demands:

- Reimburse his current employer \$90,000 for student loans the company had paid off.

- Pay all the expenses of selling his home on the West Coast and buying a new one on the East Coast.

- Pay all his relocation expenses.
- Defer his start date for six months.
- Put him on the board of directors.

"It was close to a \$200,000 package," Lannoo says, "and we had already offered him a salary of about \$100,000, a signing bonus, some moving expenses and equity."

But the candidate was trying to recoup the salary cut he'd be taking in exchange for the potential rewards of a pre-initial public offering start-up. "He was not prepared for the risk factor," Lannoo says. "It really separates the men from the boys." Negotiations ended there. ■

Goff is a freelance writer in New York.

STAYING TILL THE END

Many Y2K teams actually WANT to be at work when the millennium arrives
By Kathleen Melymuka



The place to be this New Year's Eve? Work.

Nobody would have predicted it last year, but many people who have given their all to their corporate Y2K effort really want to see how it comes out.

"A number of people have said to me, 'You can't keep me away. I'm going to be there,'" laughs Catherine Gross, CIO at Magellan Behavioral Health in Columbia, Md. "People are less concerned than they were last spring. Things have calmed down, even domestically."

As a result, Gross, who last year was worried that competing family priorities might keep key people from showing up over the date-change weekend, is now confident. "They're committed, and getting commitment is about as much as you can do—that and being flexible about anything that does come up," she says. For example, Gross has told her people that if all else fails and they can't line up child care for the weekend, they can bring their children in to work.

Most companies aren't very concerned about on-site employee complications as they near the year's end. Earlier in the year, for example, Y2K project manager Irene Dec was thinking about providing day care and even pet care to assure that the Y2K team at Prudential Insurance Company of America in Newark, N.J., would feel comfortable about showing up. But as confidence rises, getting people to show up seems less likely to be a problem. "To be at a Prudential site at New Year's Eve is something people want to do now," Dec says. "I get people asking to come."

Eat, Drink and Be Y2K Compliant

But there are still logistics to consider when more than 600 employees globally will be on-site for New Year's Eve and New Year's Day. For example, food will be plentiful—from a special New Year's Eve dinner and alcohol-free celebration to breakfast in the morning. Hotel rooms have been booked for months, and cots will be available for on-site catnaps. If people are unable to drive in or there are problems with public transit, extra cars and drivers will be standing by to pick up and deliver employees. There are three levels of on-call employees; so that if a person still can't make it in, there will be two backups. "We're taking extra steps to bring comfort to the folks here, give them a place to rest and food for them to enjoy so they can be here and still have a positive experience," Dec says.

Other companies have taken extra steps when employees indicated they were needed. For example, Charles Schwab & Co. employees raised concerns about child care, saying their regular providers might not be available because of both the holiday and the extended hours. As a result, the San Francisco-based brokerage is working

You can't keep me away. I'm going to be there.

EMPLOYEES TO CIO KATHERINE GROSS, MAGELLAN BEHAVIORAL HEALTH

with DCC Inc., a work/life benefits firm in Westport, Conn., to set up a pre-screened child-care provider network in 10 areas around the country for use by Schwab employees involved in Y2K-related activities. Employees who don't live near the 10 locations will get individual referrals. Schwab will pay more money to personnel required to be on-site or on call over the holiday weekend and will also reimburse employees a set per-hour amount for Y2K-related child care. "We're not sure yet how much usage there will be," says Walter Gendell, vice president of benefits development, "but it's the right thing to do."

But such Y2K extras seem to be the exception. At Alliant Energy in Madison, Wis., Pam Wegner, executive vice president of corporate services, thought a lot about New Year's Eve earlier this year when she suspected employees might face disruptions in community services. But increasing confidence in community readiness has changed her thinking. Alliant will have a significant number of people working over the holiday weekend, but Wegner says the company doesn't plan to offer many special perks or services.

Still, Wegner says she's sensitive to the burden this puts on employees. "We really went through the list to make sure we were having people working only where we absolutely had to have them work," she says. "We don't want to make people work in the middle of the night just because it's a neat thing to do."

The New Year's Eve cadre will include all senior management up to the CEO. "We are leading by example," she says, "not saying, 'You guys should work, and we'll have a party.'"

Alliant psyched up its Y2K team with a series of drills in which they walked through everything they will need to do over the date-change weekend. "When you put people in a drill situation, they see what this is all about and why their participation is absolutely vital," she says. "A tremendous team spirit has been developing over these drills."

Wegner's prediction for New Year's Eve: "There's a lot of camaraderie. There will be lots of good cheer. We're going to be feeding people so well that some folks are saying the worst Y2K problem will be stomachaches." ♦

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Getting in on H-1B

About 60% of all H-1B visa professionals are being grabbed up by only 20 companies. How do you get in on the action? Try these shortcuts around the red tape **By Julia King**



THE INS IS RUNNING "very, very behind schedule," says Stacy Mahab, human resources manager at SAS Institute, a software company in Cary, N.C.

BETWEEN NOW and next October, 15,000 new foreign workers are expected to enter the U.S. to work on H-1B employment visas. At least six out of every 10 will probably head to high-tech companies, which currently remain critically short of skilled IT workers.

On the surface, the process of securing an H-1B visa for a prospective employee from abroad is pretty straightforward. After finding a foreign national candidate for a specific job, an employer certifies it will pay the worker the prevailing U.S. wage. The company then files an H-1B visa application with the Immigration and Naturalization Service (INS), which is supposed to take between 30 and 45 days to review and either approve or reject the visa request.

That's on the surface.

But dig just a little deeper and plenty of logistical complexities begin to emerge. First is beating out the thousands of other U.S. employers that also are looking to obtain visas for foreign workers. Compound that with the fact

No Time Like the Present

For companies that aren't already targeting H-1B visa candidates, it may be too late

The government has yet to decide whether thousands of extra H-1B visas mistakenly issued in fiscal 1999 will be deducted from this year's quota of 155,000.

But assuming that they are and that the number of new applications keeps pace with previous years, experts predict that the cap could be reached as early as February—a full eight months short of the end of the fiscal year. This includes the estimated 20,000 visas that the INS approved last year but couldn't issue because it already had reached the 1999 limit in April.

This makes starting the process early all the more critical.

"Advanced planning is the key," says Julie Emerick, a Chicago-based immigration attorney

who says, "I have companies project how many software engineers they'll need for the entire year and file labor condition applications not just for one position, but for 10 engineers."

Other experts recommend that companies apply now for H-1B visas for those workers they want to retain but who are now working under F-1 visas. These are one-year visas granted to foreign students who graduated from U.S. universities.

"Before, we may have waited for an F-1 visa to almost expire," said Suzy Nisbet, human resources manager at SAS Institute in Cary, N.C. "But now, we're filing almost immediately because we don't know when the cap will hit."

—Julie King

that about 60% of H-1B candidates are hired by just 20 companies that have lots of experience doing this.

What are your odds for getting in on this action? Well, the visa cap for fiscal 2000, which ends Sept. 30, 2000, is 155,000 for all workers, including much-needed information technology professionals. But last year, when the cap was also 155,000, the visas ran out by April 9. The year before that, a cap of 65,000 was met by May (see related article above).

Making matters worse this year are reported computer system problems at the INS, which the agency says may have caused it to mistakenly issue as many as 20,000 more H-1B visas than it should have for fiscal 1999. Whether the overage will be deducted from this year's quota is still unknown [Page One, Oct. 11].

The months ahead will likely bring more of the same problems, experts say. They are definitely going to run out [of available visas], especially if they count the screwed-up visas granted last year to the cap for fiscal 2000," says Carl Shusterman, an immigration attorney in Los Angeles.

That makes filing a complete and accurate application the first time around all the more critical, experts say. Companies can't afford to lose days, weeks and even months going back and forth among job candidates, attorneys and the INS for information.

"INS says processing time is between 30 and 45 days once they get an application, but now they are running very, very behind schedule. It's taking two times that amount of time," says Suzy Nisbet, human resources manager at SAS Institute Inc., a software firm in Cary, N.C. Still, Nisbet and other experienced hiring managers and immigration attorneys say these are steps employers can take to speed the process and increase their chances of securing the H-1B visas they need to bring foreign-

born workers on board to fill program, IT consultant and statistician positions this fiscal year.

The process of obtaining an H-1B visa essentially involves the following steps:

- Determining the prevailing wage for a specific job.
- Obtaining a labor condition certification from the Department of Labor.
- Filing a petition for a non-immigrant worker with the INS.

Here are some tips for speeding the process along:

Use the Department of Labor's fax-back system to obtain a labor condition application.

After countless hassles and snafus, several attorneys report that this system seems to be working and that it's the fastest way to obtain a labor condition application, which is a prerequisite to petitioning the INS for an H-1B. The Web-based form is filled out online and sent back electronically by the attorney or employer, who must certify that the candidate will be paid the prevailing wage for his work at the U.S. company. What's faxed back is a computer-coded H-1B application, which will be filed with the INS. Several attorneys, including Julie Emerick, a Chicago-based immigration attorney, report receiving the H-1B application back in less than a week, compared with several weeks or longer previously.

Apply for H-1B visas only on behalf of candidates who can easily pass the INS's education and experience requirements.

H-1B candidates must have at least the equivalent of a U.S.-issued bachelor's degree in computer science or a closely related field. At SAS, Nisbet says the company looks for a degree plus at least six months of experience. For an accurate comparison, she also suggests obtaining English translations of all of a candidate's credentials, including academic records,

diplomas, degrees and transcripts.

Substitute previous job experience for qualified candidates lacking academic degrees.

The INS allows three years of professional experience to compensate for each year of university-level studies. "If a candidate has six years of work experience, it could translate into two years of college," says Shusterman. But the INS is looking for highly detailed and specific information. "They don't want to see a two-line letter stating that 'Joe Smith was here for three years and we were very pleased with his performance,'" Shusterman notes. Instead, the documentation should include full descriptions of the kinds of projects on which the candidate worked, what computer programming languages he used, whom the candidate reported to, how much the candidate was paid and how the projects fit into the previous company's overall business.

Get out of the middle.

Too many companies have their human resources group function as the liaison between IT candidates and the company or outside attorney, who ultimately files the H-1B application and shepherds it through the INS on behalf of the employer. This wastes valuable time. Send the candidate a copy of your company's annual report. That way he can fill out some of the visa application that require specific information about your company, such as location or lines of business. Also, provide the attorney with copies of the candidate's résumé, academic records and letters of reference. Having candidates and attorneys work directly with one another can save weeks from the application process, experts say.

File early, but expect to wait.

Because the government is involved, expect the process to take longer than it's supposed to take, says Andy Hafer, director of information management at Tampa, Fla.-based Hydro Agri North America Inc. "It just takes time, and you're never quite sure exactly why," Hafer says. "It's the same as when you order something from an infomercial. It takes six to eight weeks for delivery, but you're never quite sure why."

If the foreign worker is outside of the U.S. after the INS approves the H-1B petition, the individual must apply for a visa to come to his new position in the U.S. The U.S. consulate posts in foreign countries issue the visas.

If the person is already in the U.S. but working for another employer, Emerick says, the INS must also approve the new employer, because an H-1B visa is employer-specific, job-specific and location-specific. ■

King is Computerworld's national correspondent.

Top 20 Companies Employing H-1B Workers

1. Microsoft Corp.
2. Tata Consultancy Services
3. Computer People
4. Oracle Corp.
5. PricewaterhouseCoopers LLP
6. Lucent Technologies Inc.
7. Motorola Inc.
8. Syntel Inc.
9. Intel Group
10. Sonos Technical Services
11. Deloitte & Touche LLP
12. KPMG Peat Marwick LLP
13. Cisco Systems Inc.
14. Kame Inc.
15. Ernst & Young LLP
16. Intel Corp.
17. SAI Software Consultants Inc.
18. Indotronics International
19. Complete Business Solutions Inc.
20. Computer Horizons Corp.

Together these firms account for approximately 60% of all H-1B visas applied for and approved in fiscal 1998 (estimated Oct. 1, 1998, which is the most recent date available).

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE, WASHINGTON, D.C.

Top 10 Countries of Origin of H-1B Workers

FY 1998	First Half FY 1999
1 India	India
2 China	China
3 Canada	Canada
4 Taiwan	Philippines
5 Philippines	Taiwan
6 United Kingdom	Korea
7 Japan	Japan
8 Germany	United Kingdom
9 Pakistan	Pakistan
10 France	Russia

SOURCE: U.S. IMMIGRATION AND NATURALIZATION SERVICE, WASHINGTON, D.C.

So Many Workers, So Little Time

The H-1B visa cap was hit almost five months sooner in fiscal 1999 than in 1997, when 50,000 fewer were available.

Fiscal year	Visa cap	Limit reached	Time frame
1997	65,000	Sept. 1	11 months
1998	65,000	May 11	7 months
1999	155,000	April 9	6 months

ANNE MCCRORY/JARGON JUDGE

'Gimme an E!'

OK, so shoot me: I love e-shopping. I also love e-commerce, e-business, e-banking, e-mail, e-groceries and e-gardening.

Whoops — guess you may not have heard of those last two. But you could tell what they are, right? Did you have an inkling? That's what I like about e —

it doesn't require any explanation. You know right away what it is.

Of course, some folks aren't happy with that. They think it's overused (OK, it is) or imprecise or who knows what. Some have even tried to improve on it — they've started in with the F's. As in F-commerce and F-business, where I think I stand for Internet — I think. (A press release I received recently implied that it might mean information or it might

mean integrated. Who knows?) So I say, let's not split hairs.

But this does raise the larger issue of what is actually e- and what really should be F- and, while we're at it, do we need a W- for Web? It's also come to my attention that some folks use e-commerce and e-business interchangeably, while others don't. (Which, would you say, is a subset of which?) To do champion detail, applaud precision

and appreciate nuance. But in all of these cases, I choose simplicity. Explaining how all of this works and predicting how it will or won't change the world is difficult enough that squabbling over a name is the last thing we should be concerned with.

Now interestingly, e- in and of itself really isn't so intuitive. It wouldn't, at first glance, necessarily have anything to do with the Internet at all. There were plenty of electronic things that exist-

ed before that assumption came along. Take e-mail, for example, which lots of companies used to communicate internally for years before the outside world was piped in. Take electronic commerce, which existed long before Web sites sold things; it was called EDI, which stands for electronic data interchange, and it let businesses conduct commerce (i.e., send orders) electronically.

For a time, before e- became so universal, cyber was the term that meant Internet: Cyberspace, Cybershopping, Cybersocialism.

But like last year's operating system, it has gone out of style. Like many terms that don't fit well in headlines, I bade it a tearful farewell.

Not like e-, E- fits. It's snappy. People get it — they know it probably involves the Internet, and they know it means using some kind of browser interface, whether they're e-shopping, e-mailing or using an e-application



Does any high-tech jargon leave you stumped? Or smiling? Tell Anne McCrory, former Computerworld copy desk chief and now news editor. Contact her at anne_mccrory@computerworld.com.

at work. E-, unlike me-too letters like I, was first to market. It has the "brand."

And so when I say e-groceries, I mean doing my supermarket shopping on the Web. When I say e-gardening, I mean visiting a gardening Web site, where I can buy bulbs,

read some articles and chat with an expert or some fellow gardeners about why my marigolds never came up.

Isn't that what you thought I meant? ■

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Which all goes to explain why, when large carriers pick up the phone to order large ATM networks, they're now calling Ericsson.

Inventory Allocation

BY DAVID ORNSTEIN

THE NEED for precise and efficient inventory allocation is a no-brainer. Retailers and manufacturers alike have an obvious need to move the right amount of goods to the right place at the right time.

The costs of poor inventory allocation are impossible to ignore but difficult to quantify. Retailers that are out of stock risk losing customers, but if retailers are overstocked, they might have to discount goods, and their employees will need to manage inventory when they should be serving customers.

Supporting this simple business need is tremendously complex. The amount of historical sales data quickly ranges into terabytes at any large company. On top of the huge data warehouses for demand forecasting, analysts say, companies also need to implement and eventually integrate systems — usually packaged — to manage their product and promotion planning, distribution center operations and transportation networks.

Big Rewards Loom

The prize for allocating inventory optimally is huge, according to analyst Greg Girard at AMR Research Inc. in Boston. "That's been one of the underpinnings of Wal-Mart's success," he says.

There are many examples of companies using information technology to master their inventory. The Coca-Cola Co. in Atlanta offers to help retailers analyze sales data to promote customer traffic and plan space usage in stores [Business, June 21]. Minneapolis-based Carjill Inc. wants to use Web-based systems that facilitate inventory data sharing to get better demand forecasts from customers for its oils and syrups [News, Oct. 25]. Longs Drug Stores Corp. in Walnut Creek, Calif., uses a forecasting and replenishment system to allocate high-margin inventory at its prescription drug warehouse [Business, Oct. 4].

DEFINITION

Inventory allocation is the process of distributing the right amount of goods to the right place at the right time according to a detailed analysis of customer demand. It's fraught with tremendous complexity, spanning systems for data warehouses, distribution centers, transportation networks and product planning.

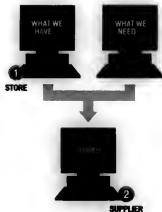
Keeping the Stores Stocked

Replenishment is a small part of the process of allocating and managing inventory, but it's a crucial one. It ultimately ensures that stores are stocked with the proper quantities of products and in the right time frame.

How products are replenished depends on many factors, such as whether the supplier is willing to deliver exact quantities directly to stores or just in bulk to distribution centers, according to Stephen A. Smith, a professor at Santa Clara University's Retail Management Institute in California. But he says the process in a common retail setting such as a department store goes something like the following:

1. Every night, a store computer calculates — based on the day's sales — how much of each product is in stock. The computer then compares the newly computed stock levels with a model of what the inventory should be.

2. If the stock on hand is lower than it should be, the computer sends an order, possibly in electronic data interchange format, to the supplier or distribution center. Replenishment can become an inventory allocation issue while maintaining the model inventory. Retailers will refresh what inventory is allocated in a model at least every season, but more likely every time there's a sale or other promotion. — David Ornstein



The Limited Inc., in Columbus, Ohio, a \$9.3 billion retailer that operates such store chains as Victoria's Secret, Express and Lane Bryant, has implemented data warehouses in six of its 11 business units and is upgrading its warehouse management systems to bring out the flexibility inherent in its geographically decentralized distribution centers, says Tom McFadden, group CIO for supply-chain management. The company is also upgrading systems to improve planning and transportation management, he says.

Guesstwork Still Plays Role

But for all the technology that companies are installing, guesstwork and instinct are still parts of the process.

"It's a science and an art both," McFadden says. "The bottom-line IT challenge, in my opinion, is how to replenish [merchandise] at the [stock-keeping unit (SKU)] level. That's an extremely large amount of data." The Limited manages supply for its nine retail operations as well as for two it recently spun off. Each unit has hundreds of stores, and each store has thousands of SKUs. The sales each year in just one chain of stores can build up to a billion rows in a bulging data warehouse, and there's no adequate forecasting tool that can work with that level of detail, McFadden says.

Forecasting and replenishment systems must be detailed and be able to quickly present the right information to the

right people — including suppliers. Shortening the lead time for replenishing inventory can put hot items on the racks faster and lessen the amount of "safety stock" a company needs to carry to avoid running out, says Stephen A. Smith, a professor at Santa Clara University's Retail Management Institute in California. But faster transportation is usually more expensive, and it can be risky for retailers to ask suppliers to directly supply merchandise to stores because suppliers may be unwilling to break shipments into the exact quantities needed. Detailed systems can help manage that, too.

"There's a real theme here about increasing granularity," Girard says. Increasing granularity, or being able to show more fine detail, also applies to assessing inventory costs. Companies also need systems that can tell them the real "landed" cost of each item in their inventory — the total cost including import fees, storage, transportation and other costs, Girard says. Only when the costs are fully understood can a business realize which items contribute most to their margins and should, therefore, be a supply-chain priority.

Finally, retailers and other businesses need to keep their various planning arms in synchronicity. Financial planners must talk with store planners and product planners to ensure that inventory moves in a way that allows each plan to be realized rather than inadvertently thwarted, Girard says.

Although it's technically difficult, optimizing inventory allocation is also fraught with new opportunities for businesses, Smith says. Retailers, for instance, can figure the Web into inventory allocation plans by using e-commerce sites to sell uncommon sizes that might take up precious space in stores, he says. ▀

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IT ECONOMY?



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The image shows the front cover of Computerworld magazine. At the top left, there's a small box that says 'NOTEBOOK EXTREMES'. To its right is another box that says 'THAT'S THE WAY IT WAS'. The main title 'COMPUTERWORLD' is in large, bold, black letters. Below the title, the headline 'Y2K MAY STALL WINDOWS 2000' is prominent. To the right of this headline is a black and white photograph of a person's face. Below the photo, the headline 'NO PANACEA' is written in large, bold letters. At the bottom of the cover, there's a section titled 'COMING NEXT: ENTERPRISE WEBINAR'. The cover is filled with various smaller headlines and text, typical of a news magazine.

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TECHNOLOGY

FASTER! FASTER!

As product data management (PDM) software becomes less expensive and easier to use, more customers are using it to link to business partners. Ford, for example, is implementing PDM software from Structural Dynamic Research Corp. to cut time and cost from its product development cycle. **» 60**

INSIDE OUT

After going to the trouble and expense of building an intranet to share data among employees, it's only natural to want to use that information to attract customers. But converting an intranet to an extranet means beefing up your security and prettying up your user interfaces, customers say. **» 66**

'SAFE' KEEPING

Network Integrity, maker of LiveVault software, and Imation, a storage firm, team up to offer real-time backup and storage services for servers over IP connections as low as 56K bit/sec. **» 61**

NO STRINGS ATTACHED

Wireless e-mail devices do more than e-mail: They can be used to jot down notes, keep track of your schedules and even make cellular phone calls. We look at three new tools from Sprint PCS, Palm and Research In Motion and offer a list of issues to consider before you

decide which one is best for you. **» 63**

LISTEN UP

For this week's QuickStudy, we look at speech recognition, a growing technology that is most frequently used for dictation, screen navigation and Web browsing. **» 65**

EMERGING COMPANIES

Need to collaborate with a variety of companies in far-flung areas? Start-up NetPulse Inc.'s IpTeam software claims to let "virtual companies" work together. IpTeam expedites Web-based collaborative engineering and design efforts. Companies use it to create a virtual enterprise for product team processes. The software eases communication as it manages documents, messages and supplier data. **» 62**

FLASHBACK

Getting a grip on handhelds hasn't always been easy. Today, they're a hot market, but in 1993 handhelds were practically nonexistent. Ironically, the company that coined the term PDA never got to enjoy the fruits of its vision. That company was Apple, which released a device that year that turned out to be one of the biggest fiascos in its history: the Newton MessagePad. **» 68**

MORE

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UNTANGLING YOUR Y2K LAN PROBLEMS

NOT ONLY DO YOUR NETWORKS have their own year 2000 problems, but those problems can be harder to find and fix than in PCs or mainframes. The reason: Multivendor, multisite, multivendor networks are more complex than relatively monolithic mainframe programs or relatively standard PCs. We tell you what to look for and how to cope.

66



Product Data Management Moves Toward Mainstream

Ford among those adopting easier-to-use, lower-cost systems to link to suppliers

BY DOMINIQUE DECKMANN

PRODUCT DATA MANAGEMENT (PDM) software, which manages engineering design information from early prototype design to production, is moving into more companies as large manufacturers link their suppliers to their systems and vendors introduce easier-to-install versions of the software.

PDM software from companies such as Structural Dynamics Research Corp. (SDRC) in Milford, Ohio, IBM and Unigraphics Solutions Inc. in St. Louis has been in use at just a handful of large manufacturers but is moving into more markets, said Ed Miller, president of CIMdata Inc., a research and consulting firm based in Ann Arbor, Mich.

"Smaller companies have the same problems [as large manufacturers], but they don't have the same resources," said Miller.

SDRC is preparing to launch Metaphase Team, a lower-priced and easier-to-install version of its market-leading Metaphase PDM software. "They're providing [Metaphase] in a way that's easier to use in a smaller environment," said Miller. "I think that is what [smaller manufacturers] are after," he added.

Pricing hasn't been determined for Metaphase Team, which is expected to ship in the second quarter of next year. The full version of Metaphase is priced at about \$2,000 per seat; typical installations cost approximately \$500,000.

Ford Motor Co. is making its



FORD HOPES PDM software that links it with suppliers will speed development of new cars such as the 2001 Thunderbird

suppliers a key part of its design team by linking more of them to its Metaphase PDM system. First-tier suppliers are already connected. Ford will use Metaphase Team to reach smaller suppliers.

"It gives suppliers the latest information they need to de-

sign their part of the vehicle," said Mark Johnson, a planning and product manager at Ford.

With its PDM implementation, which started in late 1995, Ford aims to cut the number of prototypes it builds — which can cost hundreds of thousands of dollars each — by

about half. Also, the software will help Ford design cars that can easily be custom-configured for individual customers.

One of the first cars to be designed with the new system is the 2001 Thunderbird, which has been in development for about three years.

Miller said Ford's moves are typical of other large manufacturers, including automakers General Motors Corp. and DaimlerChrysler. He said two trends are driving such companies to invest in PDM. One is the globalization of their product development efforts to take advantage of resources around the world. The second is the integration of their supply chains more closely into product development.

Ford's PDM initiative is part of a project called CJP (Computer-Aided Design, Manufacturing and Engineering and Product Information Management). Officials at the automaker declined to say how much the project has cost or how much the company expects to save as a result of it. ■

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Moving From Intranet to Extranet Not Easy

External links need better security and interfaces

BY LEE COPELAND

Converting an intranet into an extranet isn't as simple as flipping a switch.

Just ask St. Onge Co., a materials handling consulting firm in York, Pa. Having created a homegrown intranet, the company wants to make its information available to customers on an extranet.

"We offer a very focused subject matter and content other firms don't have, and we think we have a great service to offer," said Paul Evanko, a vice president at St. Onge, who sponsored the portal pro-

ject. "The knowledge we have at St. Onge is unique, and we realized that this was a good medium to make that information known to our customers."

Yet starting with an existing portal often requires scaling hardware for higher Web traffic, adding slicker user interfaces for external users and implementing airtight security.

"Security concerns are the No. 1 reason companies are not doing this," said Wayne Eckerson, an analyst at Patricia Seybold Group Inc. in Boston.

Eckerson recommends implementing session management techniques to shut down Web sessions if activity ceases, thereby limiting exposure to unauthorized users.

Loancity.com Inc., an online residential mortgage financier and services company, originally developed an internal portal based on InfoManage Inc.'s Freedom software to give its employees access to reports and loan processing data. Bruce Maurier, vice president of internal systems at Loancity in San Jose says he plans to give mortgage brokers information about in-progress loans.

"The traditional model involves making phone calls and chewing your fingernails waiting for an answer. Now, in a matter of seconds the broker gets status on where the loan stands in our pipeline," he said. "We still have to be selective about what information we give our affiliates access to."

In addition to offering self-service, companies should offer buying opportunities along the way, says analyst Phil Rasmussen at Hurwitz Group Inc. in

Framingham, Mass. "Savvy IT shops will offer self-service, plus an opportunity to purchase their service or product right along with that information," he said.

St. Onge wants to do just that when it debuts its intranet-turned-portal by year's end, hoping the information turns browsers into paid customers.

"We think there is more value than the potential danger that people will do their own consulting" using information they gained from the site, said Art St. Onge, president of the company that bears his name. "We hope there might very well be a desire to get more knowledge on the part of a warehouse operator to confirm a conclusion he came to, and we would be the natural ones to contact."

Some firms find that large customers demand access to their intranets.

Landing the U.S. Postal Service and the Department of Defense as customers meant that DHL Worldwide Express

to provide broad access to corporate information about shipment timetables, costs and tracking. The Redwood City, Calif.-based international package delivery firm extended special extranet privileges to the U.S. Postal Service and the Defense Department last year to handle shipments from U.S. bases to Bosnia.

"They required a single extranet location that gives them visibility into our shipment process," said Barney Sene, director of e-commerce systems at DHL. "So we provided it." ■

MORE ONLINE

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AMY ST. ONGE: Sales possibilities outweigh the danger of people moving information on the intranet



PAUL EVANKO: An extranet is "a good medium" for reaching customers

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Start-Up Makes Collaboration Easy

Nexprise Inc.'s ipTeam software lets 'virtual companies' work together

BY EMILY KAY

BOB CARMAN says he would like to revolutionize the way the Space and Communications Operations Unit of The Boeing Co.'s Rockeyne Propulsion & Power subsidiary does business.

For now, though, Carman, manager for advanced programs, is using collaborative design and engineering tools from Nexprise Inc. only to overhaul the construction of rocket engines. Using Nexprise's tools will cut hundreds of thousands of dollars off the development process.

Carman is deploying Nexprise's ipTeam Suite 2.0 software and revamping design and engineering processes throughout Rockeyne, which manufactures engines for the space shuttle as well as for the Atlas and Delta satellite launch vehicles.

Virtual Collaboration

Carman's group built a virtual team of workers from Rockeyne and other companies to develop a rocket engine at a fraction of the usual cost.

"When you change business practices of an organization and the way you do business, the software, in many cases, enables some changes to happen that otherwise couldn't," says Carman. "In this case of virtual [geographically dispersed] development teams, without this kind of software, it would not have been possible."

Nexprise is a 1997 spin-off of a Defense Advanced Research Projects Agency project with Boeing and the Lockheed Martin Corp.'s Palo Alto Research Lab. Former Lockheed Martin engineers Ram Siram and Gene Boschard run Nexprise.

As companies outsource manufacturing processes, they must integrate multiple enterprises and create virtual com-

panies. "Our solution lets them work as though they were part of the same company," Siram says. "It lets companies across the entire value chain — from customers, to partners, to suppliers — work in real time" to bring more innovative and bet-

ter products to market faster. IpTeam expedites Web-based collaborative engineering and design efforts. Companies use IpTeam to create a virtual enterprise for product team processes. The software facilitates communication as it manages documents, messages and supplier data. IpTeam's iNotebook consolidates data, the iDecision module provides a framework for decision and

trade-off analysis and iTracker monitors costs, schedules and performance data.

Built to defense specifications, ipTeam provides great enterprise-level security, says Ed Miller, president of CIM-data Inc., an international consultancy in Ann Arbor, Mich.

Companies can buy or rent IpTeam. Following a pilot program, the Propulsion Ordnance Thermal and Structures Products division at Lockheed Martin Missiles & Space in Sunnyvale, Calif., will deploy IpTeam internally, says Bob Marthouse, the division's manager of new business and product integration.

Rockeyne opted to outsource IpTeam management to Nexprise and avoid costs and labor involved with maintaining an infrastructure, Carman says.

IpTeam Suite helped Carman's team make significant improvements. The collaborative design team created an engine with five parts, instead of the usual 140 components. The cost to develop the first unit fell from \$1.4 million to \$50,000, and design time went from seven man-years to one.

"The most interesting thing about Nexprise is the way they focus on decisions, rather than deliverables, as the key gating items in product development," says Wayne Collier,

president of engineering, manufacturing and design at D.H. Brown Associates Inc. in Port Chester, N.Y. "That moves the team's attention to a higher level, since, ultimately, product development is less about moving paper [or electronic files] around and more about narrowing from a wide range of possibilities to a specific solution."

Carman agrees. "The ipTeam accelerated the design process and kept costs down by enabling us to replace in-person meetings and inefficiently exchange design and analysis recommendations," he says. "Our use of IpTeam demonstrates the creativity, innovation, efficiency and tremendous time-to-market benefits possible by integrating global product teams." ■

Kay writes about technology as a principal at Choice Communications, an editorial consulting firm in Chelmsford, Mass.

the buzz
STATE OF
THE MARKET

(Net) Free for All

The market for products such as Nex-Price's ipTeam Suite shows great promise, but it's so new that vendors must help users understand what they offer.

"The industrial world is changing, and partnerships and supply chain management are critically important," says Ed Miller, president of CIM-data Inc. in Ann Arbor, Mich. "NexPrice sits in the middle and says, 'We'll do a better coordination job. They have to connect people if it's the right way to operate.'"

A new category of software and services uses Internet technologies to connect design, engineering, sourcing, sales, marketing, services and customers into a global knowledge network, says Jack Maynard, an analyst at Aberdeen Group Inc. in Boston.

Products like iTeam will fill a gaping hole in the enterprise application field. "Companies are all able to do the best practices information management, supply chain and customer relationship management," says Maynard. "Where they differentiate themselves is by producing innovative products."

NexPrice, Parametric Technology Corp. in Waltham, Mass., Business Online Inc. in Palo Alto, Calif., and Framework Technologies Corp. in Burlington, Mass., plug the hole. They provide a way, via the Internet, for engineering teams to collaborate with other parts of the enterprise and outside suppliers.

"We fit in the middle of the process, coordinating external suppliers, giving access to information needed to coordinate and giving project managers insight into issues open across the project," says Brian Guilford, marketing director at Framework.

There's certainly room for NexPrice and its competitors in the market, which Maynard estimates will grow from \$1.5 billion this year to \$20 billion by 2005. He raises red flags about NexPrice, however. While the company has almost tripled its staff, with 37 employees it's smaller than \$1.1 billion Parametric. As the market evolves, a company like NexPrice could be ripe for takeover.

"If you compare NexPrice to Parametric, the latter is over \$1 billion and has a massive presence in the [computer-aided design and manufacturing] and engineering market," Maynard says.

Miller says NexPrice's focus on security is a plus, though. "They come from the defense industry, so their claim to fame is their ability to [provide functionality] in a secure environment," he says.

—Emily Kay



NEXPRICE CEO RAM SIRAM: "Our solution lets [virtual companies] work as though they were part of the same company."

NexPrice Inc.

Locations: 250 Mission College Blvd., Suite 101
Santa Clara, Calif. 95054

Telephone: (408) 327-0330

Web: www.nexprice.com

Wishes: Collaborative design and engineering tools.

Growth potential: The company is in a robust market that analysts expect will grow from \$1.5 billion this year to \$20 billion by 2005.

Why it's worth watching: Partnerships with leading enterprise resource planning and customer relationship management vendors SAP AG and i2 Technologies Inc.

Company officers:

- Ram Siram, president, CEO and co-founder
- Gene Boschard, chief system architect and co-founder

Employees: 37

Milestones:

- 1997: Founded
- 1997: NexPrice ipTeam released

Burn money:

- 1993-1994: Co-funding agreements and initial seed money from the Defense Advanced Research Projects Agency and Lockheed Martin Corp.
- August 1998: Major round of funding from Apex Investment Partners, AVI Management Partners III and First Analysis Corp.; next round funding under way

Customers: Lockheed Martin Missiles & Space, the Space and Communications Operations unit of Boeing's Rockeyne Propulsion & Power

Red flags for IT:

- Competitors have far deeper pockets.
- An attractive acquisition candidate, which could change development and support efforts down the road.

COMPUTERWORLD
emerging companies

Three New Wireless E-Mail Devices

BY DAVID STROM

TRAVELING EXECUTIVES looking to cut the cord on their e-mail habit have lots of choices these days. I looked at three of the latest wireless e-mail devices—the Palm VII, the Touchpoint phone with a built-in Web browser from Sprint PCS and an updated two-way pager from Research In Motion Ltd. All three do more than wireless e-mail, of course: You can jot down notes, keep track of your schedule and, in the case of Touchpoint, make cellular phone calls.

Although each unit has its frustrations and problems, all are improvements over the trio of devices I reviewed Feb. 15.

I've used one form or another of wireless e-mail for more than eight years and suggest that you consider the following:

- Can you get e-mail on these devices with the same corporate e-mail account that you use on your desktop? Most devices require some effort and some combination of software and services to do this.
- How much

■ Is the price reasonable and predictable? All the devices come with an array of monthly service plans and fees. Make sure you understand the pricing plan you need up front.

In an ideal world, each device would come with everything you need to extract e-mail from your existing corporate account. However, these devices aren't there yet. Each comes with its own e-mail account, separate from your existing corporate e-mail account. If your corporate e-mail system has message-forwarding features, you can turn that on when you leave town and have your e-mail forwarded to your device.

I took all three devices with me on several business trips and also carried them all over town to determine coverage capabilities and battery life. I also connected them to a Windows NT desktop and tested their synchronization software

and other utilities. Of the three, the Palm offers the most promise: It has the largest and most active developer community and the best software. However, to be a really effective Palm user, you will need to learn its Graffiti scripting language to compose messages. ■

Strom is a freelance reviewer in Port Washington, N.Y.



Palm VII

Palm Computing Inc., a subsidiary of JCom Corp.

www.palm.com

Wireless service: BellSouth Wireless Data

Price: \$499, plus various plans (\$10 to \$40 per month, depending on volume) and \$10 activation fee

Keyboard/screen: Touch screen with Graffiti script; 3.5-in. diagonal Palm screen

Batteries: Two AAA batteries last for two or more weeks

Available: In New York since May; nationwide since October

The Palm VII has a variety of ways to read and respond to e-mail. It comes with its own built-in e-mail software, called MessagePad. However, it doesn't have as many features as T4 like, such as filtering, scheduled forwarding and mass message deletion. For example, you have to log in to the Palm.Net Service Web site to delete multiple messages at once. To obtain these features and to read

your existing e-mail account, you will need to make use of either Visto Corp.'s Yahoo Mail or MonkeyMail services. Another choice is to use ThinkUp.com's ThinkUpMail client software, a free product that is the favorite of the current alternatives available for wireless e-mail.

No matter which service or software you use, you have to use Graffiti to compose messages. It will take a while to learn this language, but it's easier than typing responses on the Touchpoint phone's keypad.

BlackBerry Interactive Pager

Research In Motion Ltd.

www.blackberry.net

Wireless service: BellSouth Wireless Data (RSI model uses Ardis)

Price: \$399, plus \$40 per month for unlimited usage

Keyboard/screen: Full QWERTY keyboard but very small keys; screen has up to eight-line display

Battery: One AA lasts up to three days

Available: Now

The BlackBerry has the best keyboard of the three, with a full typewriter layout of keys, about only 3 in. wide. Given its size, I could type fairly easily and compose longer messages than on the other devices. It comes with relatively weak desktop synchronization software, because you can't synchronize your e-mails yet between the device and your desktop. It also has the most confusing set of models.

There's one that works only with Microsoft Exchange servers, another that works with Internet e-mail and a third that runs over American Mobile's Ardis wireless networks. This



latter model has a 300-per-month usage plan and works with e-mail accounts through American Mobile's 3Link Agent.

Geametrics Communications Corp. (www.geametrics.net) offers e-mail access for varying fees and will sell you a reduced-price BlackBerry as well.

Touchpoint Phone With Wireless Web

Sprint PCS (manufactured by Denso Corp.)

www.sprintpcs.com

Wireless service: Sprint PCS with service from Phone.com Inc.

Price: Various pricing plans for both voice and data start at \$10 per month, plus price of phone

Keyboard/screen: Seven lines, with 12-button phone keys with Tegic script

Batteries: Rechargeable; lasts up to two days

Available: Now

Sprint PCS has introduced its Wireless Web service, through which you can browse some Web sites using your cellular phone. Several phones are available for this service, including ones from Motorola Inc., Nokia Corp. and Qualcomm Inc.

I tested a phone from Denso called Touchpoint. Any of these phones comes ready to read e-mail. You can set up a free account with Yahoo Inc. and have it collect your corporate e-mail. And if you don't need to reply to your messages, you can forward or copy mail to Sprint's short messaging feature (every Sprint phone is equipped to receive e-mail at phoneweb@shortmessaging.sprintpcs.com). I wanted to use the phone to read my mail at InfoTech Technologies Inc.'s Mail.Audiotex.com site, but InfoTech is still working out the kinks with Sprint.

Built in to the phone is software from Tegic Communications Inc. called T9. Because you have only 12 buttons to lay in any text, Tegic has developed a way to predict what you're going to type and to facilitate the process. Although it's no substitute for a QWERTY keyboard, it does a credible job.



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COMPUTERWORLD
THE NEWSPAPER FOR IT LEADERS

Speech Recognition

BY STEVE ALEXANDER

SPEECH recognition is gaining popularity in the corporate world among nontypists, people with disabilities and business travelers who tape-record information for later transcription.

Most frequently used for dictation, screen navigation and Web browsing, PC-based speech-recognition systems have relatively high accuracy rates (consultants rate them at 80% to 99%) and retail prices starting at about \$40. That makes low-end systems suitable for office dictation, while higher-end systems are aimed at professions with special vocabularies.

In simple terms, the software works this way: When a person speaks, the software captures the sound through a microphone and converts it to a digital signal. It analyzes that digital pattern to find matches with known sounds contained in a database, then passes the recognized words to an application such as Microsoft Word or WordPerfect.

Part of that database consists of predefined sound patterns — a one-size-fits-all vocabulary for recognizing speech from as many different voices as possible. The rest is built when a user "trains" the software by repeating keywords so it can recognize the user's distinctive speech patterns.

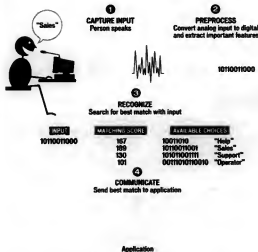
Shop Talk

Major speech-recognition software vendors — including Newton, Mass.-based Dragoo Systems Inc., IBM, Woburn, Mass.-based Lernout & Hauspie Speech Products U.S.A. Inc. and Knoxville, Tenn.-based Philips Consumer Electronics Co. — all use the same family of mathematical models to match spoken words with the database, although the technical approach varies. In Dragoo's NaturallySpeaking dictation software, spoken words are identified in two ways: by matching their phonemes, or basic language sounds, and by

DEFINITION

Speech recognition is the process in which software digitizes spoken words, then uses mathematical models to identify and transcribe the words. Voice-recognition software is used with an increasingly wide range of business software but lacks the ability to understand the meaning of what is said.

A Typical Speech-Recognition Process For a Speaker-Independent System



analyzing what preceded or followed a spoken sound to determine the context in which it was said.

"All the voice-recognition systems have pre-existing speech databases. When you train the software, you are superimposing your words on the database," says Peter Fleming, a consultant at Aristotle

Systems in Watertown, Mass. After the training, the software is likely to be able to guess what you said, even if it didn't understand every word. "It may be a phrase rather than a word that is recognized. Longer utterances are recognized more easily because they are harder to confuse with other sounds. Words spoken

out of context are harder to recognize," Fleming said.

Speech-recognition software vendors claim a 98% accuracy rate. Consultants say that may be true but only because the software has been tuned to perform well on the tests that measure voice-recognition accuracy.

"The systems have been built

to pass the challenges the tests provide," says Judith Markowitz, an analyst at J. Markowitz Consultants in Chicago. "But for some people, accuracy could be 80%, and for others it could be 99%."

It's important to remember that accuracy and user satisfaction aren't the same thing, Markowitz says. A person with an injury that makes typing difficult may get 80% accuracy doing work that wouldn't otherwise be possible and love the software despite the occasional errors, she said.

User Attitudes

Sometimes accuracy varies for technical reasons, but the user's attitude toward the technology also is important, consultants say. Fleming recommends that companies interested in speech recognition "buy one system and use it for a while because there's more to it than just voice-recognition percentage of accuracy. There's also user acceptability. See if your users are likely to take to it."

The sometimes touchy relationship between user and software may be the strongest argument for information technology departments to get involved in the selection of speech-recognition packages. Besides helping users adapt to the technology, IT also can help choose the software that best matches the task at hand and is compatible with the corporate network.

Markowitz says dictation programs tend to vary by the features they have optimized, such as foreign-language recognition, tight integration with Windows or desktop navigation or Web page use. She advises checking out claims of network compatibility.

"Some of these products work in networks and others don't, even though they are said to," she says. "Which one you choose depends on what your company is focused on."

Alexander is a freelance writer in Edina, Minn.

THE Y2K NETWORK CHALLENGE

Y2K presents problems for networks that are qualitatively different — and more daunting — than those facing mainframes or desktops
By Edmund X. DeJesus

VEN AS information technology managers begin to relax somewhat about the year 2000 compliance of their desktops and mainframes, a more intractable hazard literally surrounds them: their networks. It's no wonder that IT managers have left their networks for last — networks are more complicated, more individual and tougher to test and fix than desktops and mainframes.

While frustrated at the lack of assistance they're receiving from network hardware and software vendors, these IT managers are unwilling to publicly criticize vendors they must continue working with — so much so that every IT manager we spoke with requested anonymity. Still, nameless or not, these managers are in for trouble if their networks crash — an outcome that Gartner Group Inc. in Stamford, Conn., estimates will strike almost one-third of networks that aren't checked and fixed.

If a date-related problem takes down a segment of an enterprise network, that enterprise may be incapable of continuing normal operations for hours, days

or weeks. Still, it's not difficult to understand why networks haven't been making the Y2K to-do lists. With your desktops, you can adopt a cookie-cutter approach: Pretty much the same test-and-fix operation can be carried out on the BIOS (firmware), real-time clock and operating system of every desktop in your enterprise. Even with mainframes, you may have your million-line monster application, but it's probably written in Cobol from top to bottom.

Thousands of Items

Networks are different. You probably have thousands of items — hardware, software and infrastructure — from hundreds of vendors. Hubs, routers and switches have real-time clocks and operating systems with the same two-digit-year difficulties as servers.

For example, in a situation that's not uncommon, the systems administrator at a California consultancy did a simple compliance test: changing the server date to 1-1-2000 and rebooting. The result: No one could log on to the network because all passwords had expired. This administrator plans to change the expira-

tion option to "never" at the end of December.

A LAN manager at a Denver mortgage reinsurer describes how a lengthy simulation of post-2000 dates turned up components that were stamping some e-mail with a two-digit year. The e-mail software promptly dumped all of these messages for being older than the three-month expiration date. A simple "change-the-date-to-Jan-1-and-back" test would never reveal such a problem because it wouldn't allow sufficient time during the new century for the e-mail problem to be noticed. Although the firm has since replaced the offending unit, it intends to remove expiration controls on e-mail before the year 2000 rollover.

Overcoming Roadblocks

The first roadblock to network compliance is that it may be difficult to identify the most critical element in the system because many networks consist of combinations of different items for performing a single task. You may have hundreds of a single type of modem, but only one that handles a vital piece of traffic.

Second, some network vendor strategies often seem positively anti-Y2K. For example, it's a common — and a commonly praised — practice to create a single hardware platform, such as a router, and then define that platform's capabilities with firmware. That's swell for the vendor because it can create different hardware products by changing the firmware. But for the administrator trying to manage Y2K compliance, it's a disaster.

Finally, networks are complex, with many hidden implementations, such as firewalls in routers. The legendary problems involved in trying to track down a network problem become even more obtuse when there are Y2K considerations. Is it the hardware? The software? This particular software on this particular hardware?

The first challenge is to create a complete inventory of everything on your networks, including hardware, software and infrastructure. Your inventory has to be extensively detailed. That isn't just a workstation, it's a workstation with a network card of a particular brand, model and date, obtained from a particular vendor under specific arrangements.

Fortunately, there are tools designed to inventory networks automatically, and many of them are oriented toward particular platforms. For example, NetInventory from Houston-based blindView (www.blindview.com) inventories hardware and software on NetWare servers, with details down to the BIOS revision level — which you will need because the BIOS is one Achilles' heel of even recent models of servers.

Network Y2K Scanner from Tulsa-based Solar-Works.Net (www.solarworks.net) inventories Cisco Systems Inc. devices on a network.

Novell Inc.'s Year 2000 Information Ferret is a popular, free program (www.novell.com/year2000/y2kferret.html), also for NetWare servers. NetSuite from NetSuite Development Corp. (www.netsuite.com) in Concord, Mass., is a more general network-auditing tool for compliance.

None of these tools is a cure-all. Some may not be able to use information inventoried in another tool's format. The tool may have either too little capability to be useful or so many features that its learning curve is daunting.

But once you have at least a partial inventory, you must categorize each item in terms of criticality. Highest-priority items include those that must be Y2K-compliant or the enterprise will die, such as your central facilities and your more important interfaces

— Interapplication, intercompany or intranet. The second category includes items whose Y2K compliance will simplify the operation of your enterprise, such as secondary interfaces and certain departmental facilities. The last category includes everything else, whose failure will be a minor inconvenience.

Your next challenge is to investigate the Y2K compliance of each item, wading through vendor-supplied information of various levels of clarity and accuracy. "Sometimes you must actually call or e-mail contacts at a vendor to get the information you need," says Mark R. Neseth, a contractor assisting Deluxe Corp. in Shoreview, Minn., with its Y2K efforts.

For example, users have expressed annoyance that compliance information for Microsoft Corp.'s Windows NT 4.x seems to keep changing. But according to Don Jones, Microsoft's director of year 2000 readiness, "Microsoft is committed to supporting the compliance of Windows NT 4 with Service Pack 4." This means that users need not install Service Packs 5 or 6 if their only concern is Y2K compliance — the hot fixes to Service Pack 4 are sufficient. These same fixes are part of Service Packs 5 and 6, should users decide to install them. At this point, Jones says, only very esoteric date-related issues are emerging, such as with DOS command-line programs.

Keeping Up With Compliance

Tools make keeping up with compliance status somewhat easier. For example, Pittsburgh-based Intellus Corp.'s Year 2000 Network Advisor (www.intellus.com) keeps track of vendor-supplied compliance information for more than 40,000 hardware and software products. One free and useful tool is the Microsoft Year 2000 Product Analyzer (www.microsoft.com/technet/year2k/pca/pca.htm), which checks Microsoft software on Windows 95, 98 and NT 4.x.

There is, unfortunately, a large, gray gulf between "compliant" and "noncompliant." It's the "will not test" category, which includes products that a vendor has declined to determine are compliant or noncompliant. For example, a network specialist at a South Carolina university reports that many of the university's Cisco routers and switches fall into the will-not-test category. Its solution is to replace some of these components that needed upgrading anyway; the rest will be replaced if they fail.

Many users somewhat cynically regard will-not-test items as the vendor's way to generate new sales. John Earnhardt, a spokesman for Cisco in San Jose, defends the practice. "We can't support all products forever," he says. Instead, the company offers its customers a free upgrade patch to software or firmware. A customer may also choose to trade in Cisco products for credit toward a compliant item.

Another peculiarity of Y2K is that the compliance status of an item can change — and not always for the better. Some vendors have had to change the status of products from compliant to noncompliant after further testing. This is where Network Advisor can come in handy, tracking the status of thousands of items and e-mailing notification of changes.

Finally, don't assume that problems are going to vanish come Jan. 2. As Neseth puts it, "Compliance efforts — including tracking the status of compliance — will continue past Y2K." Expect repairs to extend well into next year, and budget for that anticipated effort. ■

DeJesus is a freelance technical writer and former editor of Byte magazine. He lives in Norwood, Mass. You can contact him at dejesus@compuserve.com.



Technology Happenings

■ **The Internet Network Information Center** is created by the **National Science Foundation** to provide registration, support and directory and database services for the Internet community. The collaborative effort involving **General Atomics, Network Solutions Inc.** and **AT&T Corp.** is intended to help speed Internet use among nontechnical subscribers.

■ **The Mosaic browser**, developed by the **National Center for Supercomputing Applications**, takes the Internet by storm.

■ **The World Wide Web** proliferates at a 341.634% annual growth rate for service traffic.

■ **Intel Corp.'s Pentium processor** allows computers to more easily incorporate data such as speech, sound, handwriting and photographic images. The name Pentium revolutionized the comics and on television talk shows, becomes a household word soon after introduction.

■ **Peter de Jager's**

"Doomsday 2007" article, warning of dangers and costs of the Y2K problem, appears in *Computerworld*.

■ **North American Aerospace**

Defense Command workers turn their computer clocks forward to Jan. 1, 2000, and the international Ballistic Missile alert system crashes.

■ In June, **John Sculley** is relieved of his position as **Apple Computer Inc.'s** CEO. **Michael Spindler** is chosen as his replacement. Sculley remains at the company as chairman for several months and then resigns.

■ **Microsoft Corp.** formally launches **Windows NT** at Windows World in Atlanta. According to Microsoft, Windows NT can scale to meet increasing processing needs because it has no internal system constraints on resources and provides consistent support for Intel, RISC and multiprocessor systems.

■ **IBM** releases OS/2 2.1

Other Notables

■ **Toni Morrison** wins the Nobel Prize for Literature.

■ **Best Picture:** *Schindler's List*

■ **Ruth Bader Ginsburg** is appointed to the U.S. Supreme Court. **Janet Reno** becomes the nation's first female attorney general.

Early PDAs: Pretty Darn Annoying

BY MARY BRANDT

THE COMPUTER industry hasn't always been good to pioneers. Such is the case with personal digital assistants (PDAs), which today comprises a hot market but in 1993 were nonexistent, save for some early electronic organizers from the likes of Psion Inc.

In fact, in an ironic twist, the company that coined the term PDA never got to enjoy the fruits of its vision. That company was Apple Computer.

Apple, which in 1993 released a handheld device that turned out to be one of the biggest flops in its history: the Newton MessagePad. Apple formed the Newton research group in 1988 to develop a new generation of "intimate computing devices," according to Barry Bayus, a professor at the University of North Carolina at Chapel Hill's Kenan-Flagler Business School. By the summer of 1991, the group had scoped out the first Newton product: a \$500 handheld device with pen input, personal organization functions, communications capabilities and intelligent software capable of learning user preferences.

The Newton's development and release were accompanied by incredible hype, fueled by a \$10 million to \$12 million introductory advertising campaign, according to Bayus. Apple President John Sculley described it as a highly portable smart device that would cap-

ture, organize and communicate information to and from anywhere in the world.

The big moment occurred at Macworld in Boston, just two hours before the show, the software was completed and downloaded to the devices that were available for sale.

"Techies bought them in droves, based on its cool factor and secondarily for its promise," says Tim Bajarin,

president of Creative Strategies in San Jose. "But Apple overpromised and underdelivered. The love affair

ended quickly." Perhaps the biggest disappointment was the poor handwriting recognition. "I had many talks with Sculley and his team back then," Bajarin says. "They made one major assumption: that processing power at the chip level was strong enough to handle handwriting recognition." But that wasn't the case. One Newton retailer reported that when you wrote "Apple Newton" in "fairly neat block letters," it came back as "It Pie Warm," Bayus says.

Though Apple eventually sold an estimated 120,000 of the devices — 80,000 of them in the first year — sales didn't come close to the millions the company expected. Finally, on Feb. 27, 1998, Apple issued a statement that it was terminating all further development of the Newton. And while there are still pockets of enthusiasts for the device, it is mostly defunct.

But from today's vantage

point, the Newton is a landmark product. "It brought the concept of PDAs and handhelds into the computer vernacular, and it actually helped define what would and would not work," Bajarin says. "If you look at the rhetoric from Sculley during those years, fundamentally he was right: PDAs will revolutionize computing."

Between 1993 and 1996, many companies threw handheld computers into the ring, with varying success. The company that finally got it right was Palm Computing Inc., now owned by Santa Clara, Calif.-based 3Com Corp. It released the Pilot PDA, now called the Palm computer, three years after the Newton's debut. "Sculley... wanted the Newton to be all things to all people," Bajarin says. "But [Palm founder] Jeff Hawkins said, 'Let's do one or two things absolutely brilliantly.' It was mostly a utilitarian

but highly productive device."

Today, 55 million Palm devices have been sold. And International Data Corp. in Framingham, Mass., expects the total number of handheld devices sold to reach 13 million by 2001.

For \$299, users could buy a really good scheduler, address book, memo pad and contact organizer with some limited handwriting recognition.

"Hawkins said, 'Hey, this is exactly what it is, nothing more,'" Bajarin says. "It's a PDA that you handle your schedule and contacts and make personal notes, and you have to learn to write the 26 letters correctly." An added bonus: the Palm's synchronization software, which enabled users to synchronize the data on their PDA with their desktop computer, worked extremely well, "something the Newton never got right," Bajarin says. ■

Brandt is a frequent contributor to Computerworld. Contact her at marybrandt@necol.com.



President Clinton agrees to a compromise on the military's ban on homosexuals.

JANUARY FEBRUARY MARCH

Five are arrested and a sixth is sought in the bombing of the World Trade Center in New York.

Europe's Maastricht Treaty taken effect, creating the European Union.

APRIL MAY JUNE

Five kills 72 as the Branch Davidian standoff in Waco, Texas, ends with a federal assault (above).

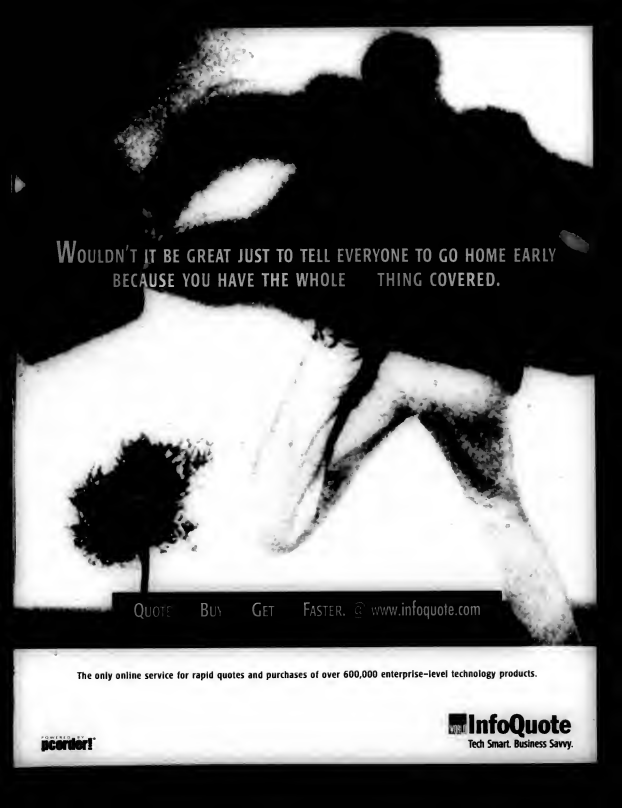
JULY

An Israeli/Palestinian accord is reached.

AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER

Clinton signs the Brady Bill, which regulates firearm purchases.

■ Flashback is produced with the assistance of The Computer Museum History Center in Mountain View, Calif.



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Georgia on Their Minds

Two Atlanta transplants share their experiences finding top work and sought-after lifestyles in the Peach State
By Carla Catalano

David Quinlan and Troy Hollenbach were two young information technology professionals looking to start new chapters in their lives. Quinlan's migratory history shed light on his desire to find a place to call home, while Hollenbach had recently found the courage to spread his wings.

Quinlan and Hollenbach recently accepted IT positions in Atlanta. They say their decisions to relocate weren't based solely on their careers, but also on finding inner balance. *Computerworld* chronicles their journeys to Atlanta.

David Quinlan

Quinlan was born on the move and has called many places home. But he says Atlanta is the "welcome surprise" he wanted. "My father was in the military for 25 years and we traveled a lot when I was growing up, so I've lived

almost everywhere in the United States," says Quinlan, now project manager at MCI WorldCom Inc. in Atlanta.

Quinlan spent the early years of his career building his résumé by moving to where the best jobs were. "I took on marketing positions, worked as an Internet consultant and then accepted an Internet-specific position at Nokia Corp. in Helsinki, Finland," he says. Last year, Quinlan moved back to Colorado and launched a serious career hunt. Coming from Helsinki's cold and dark climate, Quinlan says he wanted more than just a job; he wanted a lifestyle—a summer, more active and lively one, which would help get involved in the community.

Quinlan says he "wanted to stay in high tech, but Atlanta wasn't even on my mind."

More interested in the silicon valleys, he spent three

months researching openings via the Internet in Boston, San Francisco and Denver, among others. Theo a friend suggested he consider Atlanta because it's "a young and energetic city, full of large, well-respected high-tech firms."

Quinlan submitted résumés to several companies in Atlanta and did some telephone interviews. At his own expense, he flew down for interviews with companies like The Coca-Cola Co., MCI WorldCom and BellSouth Corp. He accepted MCI WorldCom's offer. The search was complete in about three months.

Although Atlanta's diverse high-tech community was intriguing, Quinlan acknowledges that it was the Southern charm that reeled him in. "I'm surrounded by bright and friendly people who support me both in and outside the workplace," Quinlan says. Plus, MCI WorldCom's improvement philosophy for its employees boosts morale, he adds.

Troy Hollenbach didn't want to leave the nest in Pennsylvania, but when a former boss offered him a job in Atlanta, he flew south at breakneck speed. "I kept in touch with my old boss, so when a position opened up in Atlanta, he gave me a call," Hollenbach says. "This was an opportunity to do exactly what I wanted, and the potential for career growth was incredible."

Hollenbach used the Web to research the firm, Manhattan Associates LLC, a distribution software development company. He interviewed over the phone and then accepted a position as a software engineer. An admittedly "shy guy,"



Hollenbach says he worried about whether he could hack leaving family and friends behind to be successful in Atlanta's high-tech community. "Coming from a small IT department where there was one programmer to a project, I didn't know how I would fit into the huge IT pool at Manhattan Associates," he says.

It turns out that the IT department is broken into small, specialized groups—a structure that Hollenbach says helps him feel comfortable. Working in a big department has its advantages. "I can share my knowledge with peers and we bounce ideas back and forth," Hollenbach says. Plus, "it's intriguing to hear different groups discussing different aspects of the same product."

The biggest and best surprise about Atlanta is the supportive environment, Hollenbach says. "The first week I was in Atlanta, I got invited to a dinner party by a neighbor," he says. Plus, five months into the job, he was promoted to senior software engineer, making approximately 15% more than he did in Pennsylvania.

He says he doesn't worry about finding another job if he has to because there are "so many good technology companies in the area."

Catalano is a freelance writer in Holliston, Mass. Contact her at catalano2@aol.com.



Georgia Bound?

Is a quest for exposure to emerging technologies and different products and applications, many mid- to high-level IT professionals look to the Georgia market, especially in and around Atlanta. Many companies there have the kind of diverse, high-tech patches that entice hungry IT professionals to pick up and move, says Jeff Collier, a technical recruiter at Manpower Technical Services in Atlanta.

IT and telecommunications are the hottest markets. The area from downtown Atlanta to 40 miles north, east and west of the city is probably the hottest IT and telecommunications market for employment in the country, says Collier. Savannah, Macon and Columbus don't attract

as many IT and telecommunications professionals because the majority of firms are industrial manufacturing and engineering, Collier says.

Savannah, Macon and Columbus are smaller metropolitan areas, with less economic growth. The greatest demand in these areas are for AS400 and Cobol programmers and legacy system developers.

Hot markets in Atlanta include Web and e-commerce development. "We're always looking for people with Web experience in HTML, Java and JavaScript," Collier says. Hot e-commerce skills include Common Gateway Interface and electronic data interchange, he adds. There's still a high demand for traditional client/server skills like Visual Basic, Visual C++, Oracle, SQL Server and object-oriented pro-

gramming, although brick-and-mortar companies developing Web sites have skyrocketed the need for Web skills, says Sherron Burdette, vice president of human operations at Manpower Resources Inc., an IT staffing firm in Atlanta.

A big demand for this skills and a stable one for Windows NT systems administrators have companies looking for database administrators with experience in both operating systems, Burdette says. The demand for Lotus Notes developers and administrators is still high, but has stabilized in the past few months.

For networking and hardware professionals, knowledge of Bay Networks Inc. products, such as

servers, hubs, routers and switch machines for phone lines, and Cisco Systems Inc. products are important, Collier says. Plus, "there's a lot of opportunities for Windows NT hardware professionals," he adds.

Mainframe languages like Cobol and Fort aren't as hot, but because of year 2000 compliance issues, there is a need for people with experience in these languages, adds Collier. Start connecting the dots, says Collier. Get a look at how from the cluster of companies (which lists the top 15-50 companies), Collier suggests.

"Atlanta is a Web-heavy town, and there are several Web sites that list employment opportunities," he adds. —Carla Catalano



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The common thread among information technology professionals is that once Y2K is in the rearview mirror, systems will take a leap forward. And among the hottest skill areas best positioned for this explosion is Oracle™ with additions to its suite of products to handle front-end office operations and the continuously evolving e-business applications.

Among the companies interviewed, literally thousands of jobs are in the wings for the year 2000.

by Carole Hedden

Hot Skills: IT Careers ORACLE New Oracle products answer post Y2K buzz

Computer Science Corporation El Segundo, CA

Computer Science Corporation Consulting has seen a slowing of hiring IT professionals with Oracle skills in the past couple of months. But Sue Scarbrough, recruiting director-system integration competencies/enterprise solutions, says hiring will be much heavier in the coming year. "Once we turn the corner of Y2K, I think you'll see companies taking swift action into front-office and e-business capabilities," says Scarbrough.

And CSC plans to be ready for the new challenges. Scarbrough says the focus will be on customer relationship management and the ability for clients to begin using or expanding their use of web-enabled applications. "Oracle is prepared for this shift," she adds.

CSC needs people with experience in implementing Oracle solutions and in creating applications with Oracle tools, especially web-based tools. "We want creative thinkers with good consulting skills who are familiar with the Oracle Suite of Products," Scarbrough says.

To attract this highly-sought-after talent pool, CSC offers excellent career growth opportunities, with a minimum of 40 hours of training every year and an environment that respects the value of perpetual learning and sharing of knowledge capital. "If we see a new technology that will serve our clients, we transition the skills of our employees by delivering the training necessary to implement these new solutions," she says. CSC also works extensively to develop internal virtual communities. These online interest groups keep employees linked to one another and speed the sharing of new technologies and how to apply them.

"Our environment at CSC is strong because it is based on respect for the individual. We work with you to determine how to keep your career moving forward," says Scarbrough. "It's not just a once-a-year thing. We can help you grow as you move up through one of our three career path options - technology, management or business development. The opportunities within CSC, an \$8 billion dollar organization, are many as you look across all three divisions - consulting, government and outsourcing."

Logicon A Northrop Grumman Company Hermiston, WA

In the world of IT, Logicon is a strong player, capturing more than \$1.1 billion in business last year, and is on pace to increase sales by more than 20 percent in 1999. However, just as impressive is the company's record in reselling Oracle tools and customizing them for companies, as well as integrating large systems for its clients.

Logicon serves federal, state, local and commercial customers and is the in-house IT provider for Northrop Grumman. The work involves the company in unique and complex technologies. According to Raj Mittu, Oracle account manager, "The best part is that our employees are involved with some of the most unique technologies around, those of the DoD (Department of Defense) world. This is serious systems integration for such capabilities as war gaming, mission planning, training, simulation, and message dissemination. It's very interesting intellectually."

Steve Crumley, senior technical recruiter, notes that in addition to the intellectual challenges at Logicon, the company's partnership with Northrop Grumman has given Logicon real power in what it can offer to employees. "In addition to being competitive in the IT market, we offer benefits not common in this industry," says Crumley. "Things like short- and long-term disability, travel insurance and a very progressive telecommuting policy. Each employee has the opportunity to qualify for \$6,000 toward additional degree studies."

Logicon is in search of people who have worked in development of tools and applications, data base administration and programmers. The company currently has more than 11,000 employees and plans to hire 500+ people in the next 12 months.

Motorola Tempe, AZ

Among the giants of global business is Motorola. Yet this is a company that transforms itself frequently, most recently two years ago. That's when the company shed itself of aging technologies and focused its attention on the future, on the digital world.

And that's where Oracle and information technology come in. According to Bret Mathews, candidate sourcing manager – western region, the entire corporation has shifted to a one-platform world, where Oracle is the basis of all business operations worldwide.

In addition, IT professionals are working on the new products for the communications giant – the wireless world where Internet, telecommunications and data come together in a single piece of equipment, such as a hand-held phone. "The corporation is moving into the 21st century after looking at consumer needs and technology requirements," says Mathews. "IT applications and processes have been designed to transition Motorola into the new millennium and to capture market share."

To do so, Motorola is seeking individuals who can address internal and external needs, from front-end to back-end, development of new applications to technology development. In addition to Oracle experience, Motorola continues the evolution of its use of the web and the development of its IT architecture. "Each sector of our business needs different skills," says Mathews, who notes that Motorola has hired 22,000 people since the beginning of 1999 and projects hiring thousands more for the remainder of the year and next. "The result is that we can match your interests with opportunities."

And, those who go to work for Motorola get the benefits of this mega-company's experience in breaking technologies in the past. Through the company's work in emerging technologies in developing the first car radio to the walk on the moon and in telecommunications, Motorola learned that career development is critical to attracting and keeping the most talented people. "We've revamped our internal opportunity system to create Career Enhanced Opportunities," says Mathews. "Motorola University is the standard for internal education, offering assistance and connecting you with new technologies, new business processes and products, and is your entry to advanced education. There's a structure here that provides a rich mix of leading-edge learning and experiences."

Jack Parker, sourcing specialist, says, "The complexity of finding an Oracle candidate that has all of the skills we are looking for is one of the biggest challenges."

ReSourcePhoenix.com San Francisco, CA

In a world where business focus is critical, ReSourcePhoenix.com (RPC) is relieving start-ups to mid-range companies from the details of back-office financial operations. According to company president and COO Bryant Tong, ReSourcePhoenix.com is not just an ASP (application service provider), it is an FSP (full-service provider). "We provide a tier-one ERP solution, but we also provide the accounting and IT staff to implement and manage ongoing operations," he says. "The result is that our clients can access the real-time business information they need without the headache of running an in-house accounting department."

To fulfill this mission, RPC relies on Oracle Applications and an infrastructure that includes SUN enterprise servers and the security of the Cisco Powered Network. The company uses the Internet to leverage the technology, processes and people at its data and operations centers. RPC currently has a data and operations center in San Rafael, CA, a second operations center scheduled to open in Alameda, CA this month, and a data center projected to begin operating in Boston, MA in Quarter 1, 2000.

Tong says the positions open at ReSourcePhoenix.com vary. RPC is hiring entry level accountants as well as experienced accountants with their CPA license and MBAs with good, solid experience. Oracle-specific experience isn't required as RPC will provide training to employees.

The fastest growing employee hiring portion of RPC's business is Oracle integration. "Our implementation specialists help migrate data from our client's legacy systems on to the Oracle platforms," he explains. "We are also committed to offering our clients the latest e-business technology, so our employees will be integrating front-end business processes with the back-end."

"We think we can offer something more than a standard accounting firm," says Tong, noting that the company's employee retention rate hovers just above 93 percent. "Our employees benefit from experiences in a wide variety of industries and can choose the kinds of projects that will keep them challenged in their careers. It sounds cliché, but the value we place on people working at ReSourcePhoenix.com is something that shows. It's a place people want to be."

The Whitaker Companies Houston, TX

Building business on the basis of relationships is an integral part of The Whitaker Companies, both with clients and with co-workers. Whitaker provides supplementary staff for enterprise implementations, with Oracle representing the largest segment of the company's service to Fortune 1000 companies.

At six years young, the company continues to grow domestically and recently launched its consulting practice, in addition to the implementation staffing. "We also are seeing new opportunities in Egypt, Saudi Arabia, Europe and Southeast Asia," says Bonnie Lyons, vice president of The Whitaker Companies' Information Technology and Consulting sectors. "In the soft market resulting from the Y2K uproar, we've had a chance to develop a strong infrastructure to handle and build our business. We believe 2000 will be a blockbuster year."

To handle the anticipated growth, Lyons is looking for people with Oracle Applications experience (i.e. Oracle Financials, Oracle HRMS, Oracle Manufacturing, Supply Chain). In addition to working with the traditional Oracle packaged applications, Whitaker needs people with knowledge of Version 8 and higher, Release 11 and higher, Financial Analyzer and Java.

"Whitaker Consulting also will be implementing the newest Oracle technology, including Portal, i-Pay, i-Store, CRM and Service," says Lyons. "Added to the technical skills we look for in consultants, is the need for prospective new hires to understand the consultant/client relationship. That's part of being a good consultant, the relationships," she says. "Technology for the sake of technology isn't the answer. Technology is there to serve business."

To compete in the intensely tight labor market, Whitaker is in the process of overhauling its compensation policies and will allocate funds for regular training opportunities as part of the overall compensation package. "One of the things I tell potential new hires is that people are generally in a good mood at Whitaker. It's a good place to work," says Lyons. "That may sound silly, but it's the feel of this place. Whitaker people tend to laugh, joke, enjoy work and one another."

Whitaker has offices in Dallas, Austin, and Colorado Springs and recently opened its consulting practice in New Jersey. Lyons reports that revenue growth should hit three-digit increases in 2000, after a 356 percent increase in 1998 and an 80 percent increase in 1999.





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Time Warner (HD)	44.3	WorldCom Inc. (CL)	-48.8
Renaissance Worldwide	38.3	Newsline Networks (CL)	-48.8
Applix Inc.	34.3	World Communications Inc.	-48.8
Tricore Systems (HD)	33.8	DOX Systems	-48.8
Stratix Inc.	33.8	Ceridian	-48.8
DOLLAR		DOLLAR	
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Thaco Software Inc. (HD)	30.50	WorldCom Inc. (CL)	-60.30
Uniphase Inc.	26.44	IBM	-7.63
Ariba Inc.	19.30	IBM	-7.63
Wentworth Communications Inc.	17.60	IBM	-7.63
Network Appliance Inc. (HD)	18.64	IBM	-7.63
America Online Inc.	16.76	IBM	-7.63
Checkpoint Software Tech (HD)	16.30	IBM	-7.63

Be Free IPO Takes Off; Trouble Ahead

Analysts say company may face problems later

BY DOMINIQUE DECKMANN

INTERNET MARKETING firm Be Free Inc. in Marlboro, Mass., made a splash when it hit the stock market Wednesday, as it started trading at almost three times the offer price of \$12 per share. But analysts worry about its long-term prospects.

Be Free is hitting the market at the right time, as one of the first initial public offerings (IPO) that lets investors buy in to the hot trend of performance marketing. Traditionally, online advertisers pay every time their ad is viewed or clicked on—whether or not the person who views the ad buys a product. The banner-advertising market is dominated by a handful of companies, including DoubleClick Inc. in New York and AdForce Inc. in Cupertino, Calif.

By contrast, Be Free allows advertisers to pay a percentage on actual sales generated by an advertisement or link. Be Free helps Web merchants create a network of affiliate sites that provide a link to the merchant's site and provides detailed tracking and billing of each transaction.

"The value proposition is good for advertisers," said Randall Roth, an analyst at Greenwich, Conn.-based money manager and institutional research firm Renaissance Capital

Corp. However, said Roth, "it's not clear that [Be Free] can make money. It may be one of those cases where the more volume they create, the bigger the losses." Be Free charges a small setup fee for each ad link but plans to make its real money from the commissions on products sold through those links. So the number of ads placed and its losses could mount in tandem, he said.

So far, Be Free has seen losses grow faster than revenue.

Irv DeGraw, research director at WorldFinancenet.com Inc. in Sarasota, Fla., said he was surprised Be Free did so

well on its first day but that he expected the stock to erode during the next few weeks. "I expect that they will eventually settle in the low 20s," said DeGraw.

DeGraw said Be Free can only live up to its valuation by being acquired. "It can't build itself fast enough to sustain this valuation," he said.

The \$29 closing price values Be Free at more than \$600 million, while revenue for the nine months ended Sept. 30 was \$2.7 million, up from less than \$1 million last year.

Some analysts are still skeptical about performance marketing. Barry Parr, director of consumer e-commerce research at International Data Corp. in Mountain View, Calif., said advertising-based sites have enough demand for performance-based pricing, which is more risky. "The money is still in banner advertising," he said. ▀

JUST THE FACTS

All About Be Free

Ticker Symbol: BFRE

Shares offered: \$6 million

Offer price: \$12

Closing price, 11/8/99: \$29

Employees: 54

Revenue: \$2.7M

Net loss: \$32.5M

* Nine months ended Sept. 30

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Continued from page 1

SAP Gets Stuck in the Spin Cycle

partially due to the new [SAP] implementation and also due to record levels of orders," said Christopher Wyse, a Whirlpool spokesman.

In a statement, Whirlpool Chairman and CEO David R. Whitman said shipping delays, "most of which are already behind us, are due as much to the strength of our North American business... as to issues we've already addressed with the new system." He added that the problems shouldn't force the company to miss its fourth-quarter earnings targets.

According to Zimmerman, 90 days before Whirlpool was scheduled to go live Sept. 7, SAP assigned a postimplementation consultant to check for any functionality problems that might affect the launch. The testing raised two red flags.

Two batch processing transactions were taking a long time

to feed into the decision-support database and into the customer service system.

"We made recommendations on what to fix," which included stripping out some instructions and making the transaction smaller, said Zimmerman. But Whirlpool and its implementation partners, Deloitte Consulting in New York and SAP, decided to hold off on the fix. "A lot of customers go live [with red flags] without any problems," he said.

Deloitte officials declined to comment.

Performance Deterioration

Things seemed to be running smoothly days after the launch when 1,000 system users processed appliance orders. But by Sept. 18, with 4,000 users placing orders, performance started to deteriorate, Zimmerman said.

That's when most users

Whirlpool appliances started feeling the pinch. Foremost Appliance in Chantilly, Va., which gets one-third of its revenue from Whirlpool sales, had shipments from Whirlpool's Carlisle, Pa., distribution center delayed six to eight weeks.

"Some people are ordering four or five appliances, and we get one this week, none for them the next week. Then one more the week after. It's been a dilemma," said Bill Brennan, store manager. Brennan said he's been steering customers who don't want the long wait to other brands.

Whirlpool is the latest in a recent spate of enterprise resource planning (ERP) implementations in which user companies have grossly underestimated the complexity.

Hershey Foods Corp. is still struggling to fix order-processing problems that are hampering its ability to ship candy and other products to retailers. [Page One, Nov. 1]. The Hershey, Pa., candy maker attempted to install a wide swath

of SAP R/3 applications, plus companion packages from two other vendors, in a single rollout during one of its busiest shipping seasons.

Sources said that Hershey squeezed what was originally expected to be a four-year project into just 30 months.

Vendor Woes

Other ERP vendors aren't immune. W. L. Gore & Associates Inc., maker of the waterproof fabric Goretex, last month sued PeopleSoft Inc. and Deloitte & Touche, charging that the software maker and consultancy failed to properly install PeopleSoft's Human Resources Management System to the point of damaging Gore's business operations [News, Nov. 1].

"These implementations are like doing open-heart surgery. There was an expectation on the part of the companies that we completely understood," said Chris Selland, an analyst at The Yankee Group in Boston. Selland said that SAP has recorded more implemen-

tation successes than failures and that it's common to find "a hundred little problems and 10 that are major" when going live — not just two like Whirlpool had.

"You also have to blame SAP because, for companies like Whirlpool, you have to set the expectations," said Dave Boulanger, an analyst at AMR Research Inc. in Boston. SAP has been under pressure to change its image from that of a company whose software requires multiyear, multimillion-dollar implementations to one that offers shorter, easier projects, Boulanger said. SAP's plan to bring in project overseers 90 days before going live is relatively new, he said, but users would be better served if SAP were present at the project from beginning to end.

Regardless of who's fueling the impression that companies can't launch an ERP application quickly, "companies have to realize that the onus is on you and the consulting firm to make it work," Selland said. ■

Continued from page 1

Dot-com Fills Online Financing Void

easier for companies that don't have top-tier credit ratings to shop for financing that will help cash deals.

"I think it's a great concept," said Mark DiLillo, president and CEO of Endura Plastics Inc., a Kirtland, Ohio-based plastics molding maker. Historically, if Endura wanted to buy injection molding equipment from a company such as Strengville, Ohio-based Van Dorn Demag Corp., Van Dorn would either finance the deal through a single lending institution or Endura executives "would have to work the phones" to secure financing through a bank, said DiLillo. "You have no idea if you're getting the best rate because you're working with one lending institution," said DiLillo.

That was true even if Endura had ordered the equipment through PlasticsNet.com, an electronic marketplace for the

\$420 billion U.S. plastics industry. Endura channels 15% to 20% of its resin purchases through PlasticsNet.com. Until now, PlasticsNet.com could take the order online, but Endura and Van Dorn would both have to go off-line to secure and close financing for the machinery.

Now, the eCredit.com network will let companies such as Endura fill out a credit application online. eCredit will then zap that application to a group of lending institutions that are participating on the network. The lenders would respond with financing terms and offers to Endura within a few minutes, according to eCredit officials.

Endura would then be free to

agree to terms with one of the lenders, print out the paperwork, sign it and then fax it back to the lender in a cycle that would take a maximum of a few hours, not the days of a typical transaction.

eCredit officials said they have 15 customers signed up for the network. They hope to have up to 20 lenders on board by year's end.

The financing and credit network "is a true market-making mechanism for us," said Nick Stojka, an executive vice president at Commerx Inc., the Chicago-based company that runs PlasticsNet.com.

Stojka and executives from other sellers who plan on using the network said the costs that eCredit is charging to route these deals are reasonable. An initial cost analysis conducted by Commerx shows that the cost of using the eCredit system "is significantly

less" than what it costs PlasticsNet.com to process equipment financing today, said Stojka.

Stojka wouldn't disclose how much his company is paying to use the eCredit service. However, eCredit is charging sellers between \$8 and \$25 to arrange financing for business-to-business transactions and \$2 to \$8 for less complex, business-to-consumer deals. At Deepak Verma, vice president of business development at eCredit.com, Lending institutions such as Fleet Leasing Inc., for example, will be charged 100 basis points on each transaction, or, say, \$250 for a \$25,000 loan, said Verma.

The network is also expanding e-commerce opportunities for some companies whose buyers otherwise had to use credit cards to pay for pricier items. "To date, we haven't had a methodology for offering financing to consumers on our [Web] site," said Michael West, CEO of HomePoint Corp.'s HomePoint.com, a Greenville, S.C.-based home furnishings

merchant. West said his company examined other financing networks, but the speed of eCredit's system was the determining factor.

Unique Network

Analysts familiar with the eCredit network said there are no financing networks like it on the market. "It's amazing stuff — there are no direct competitors," said Carol Baroud, an analyst at Herwit Group Inc. in Framingham, Mass. By using the Internet, said Baroud, "there's now an aggregation of lenders who are willing to assume credit risks" that outline sellers previously had trouble accepting or couldn't accept, said Baroud.

Dan Sholler, an analyst at Meta Group Inc. in Stamford, Conn., said he doesn't think eCredit will face any significant scale issues with its system. The heart of its Web-based credit authorization system is already used by blue-chip companies such as Procter & Gamble Co. in Cincinnati, Microsoft Corp. and Intel Corp. ■



COMMERX'S NICK STOJKA says the costs are reasonable

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FRANK HAYES/FRANKLY SPEAKING

The main event

THE FUTURE arrived a little early for Hershey Foods. In July, to be exact, when a botched big-software project meant the chocolate maker literally couldn't deliver the goods. The screwup jacked up product delivery times from five days to 12, increased inventory costs by 29% and kicked the props from under Hershey's third-quarter sales (a \$150 million drop, or 12%) and profits (down almost \$20 million, or 19%). After a catastrophe like that, could anybody still believe IT can't have a big impact on the business?

Sure they could. In fact, for both business and IT people, it's an article of faith that IT isn't really critical to business operations.

Businesspeople dismiss IT's impact because real business is about making, selling and delivering products, while IT is just

about data, reports and PCs. And IT people dismiss IT's impact because, hey, we like being a sideshow to the real action. If a project is late or doesn't work quite right, as long as it only annoys users inside the company, that's no big deal. Who wants to be on the firing line?

So we didn't believe things had changed in 1996, when a \$5 billion wholesale drug distribution company in Dallas called FoxMeyer Corp. went bankrupt after a new ERP system generated \$15 million in erroneous orders that got shipped.

We didn't believe the future had arrived in early 1998, when toolmaker Snap-on Inc. couldn't ship half its orders due to a bungled ERP installation. Quarterly earnings fell \$16 million, a terrifying 42%.

Or in July 1998, when Samsonite Corp.'s new enterprise systems came online and all but halted product shipments and invoicing to retail stores. Samsonite lost almost \$30 million that quarter because of the foul-ups.

Or a few months ago, when high-end hi-fi maker Bang & Olufsen went live with its ERP project and then had to halt all product deliveries for eight days, losing the equivalent of \$44 million in cash flow.

And these are just samples of the highest-profile flops, the ones so bad they had to show up on financial reports. There are lots of smaller failures buried in the budgets of companies around the globe.

But the failures are getting bigger. And they'll keep getting bigger, because IT's impact on business operations will keep growing.

The IT problems we all know about but don't like to think about — that almost every project comes in late, over budget and short on functionality, that software vendors almost always slip their schedules too, that consultants are actually worse at getting jobs done on time than we are — now cost us real sales and profits.

IT's sideshow days are over. Our projects can make or break a company.



That's the future we're colliding with right now. We don't want to believe it, but we're already neck-deep in the real business of making, selling and delivering products. Supply chains and just-in-time and zero-inventory targets mean if a project fails, we're not just burning the project's price tag — we could cost the company a lot more.

Right now, we're all sweating out the last eight weeks before Y2K zero hour. Nobody on the business or IT side has any doubts about how big an impact Y2K can have on every piece of the business.

But that impact won't end with Y2K. IT's sideshow days are over. Our projects can make or break the company. From now on, we

are on the firing line.

Whether we want to believe it or not. ■

Hayes, Computerworld's staff columnist, has covered IT for 20 years. His e-mail address is frank_hayes@computerworld.com.

SHARK TANK

BUMMER, MATE If you sweet-talked your CEO into sending you to Queensland, Australia, for the bellybush (most influential tech event in the southern hemisphere) APC Techpoint II, you have Sharky's sympathy. Disaster. Organizers promised 30,000 attendees and may have gotten 600, reports say. Key notes were cancelled, shirts were lost, faces are red. They put Techpoint out of its misery after two days (out of a scheduled five). The head honcho was unavailable for comment — on the lam in the Outback, no doubt.

AND STILL HAVE TIME TO WATCH DICK CLARK Not so far away, in Indonesia, the national electricity company is called PLN. According to a pilot list, an Indonesian newspaper recently asked a PLN rep about its Y2K preparedness. The rep said: "We can observe what happens [at midnight] in Western Samoa, New Zealand and Australia and still have six hours to make plans." Sheesh, they're making a full six hours? Wings.

NO OFFENSE, MR. PRESIDENT Fast-forward to Jan. 1.

The Feds' Y2K coordination center will be updating and measuring the citizenry. Jim Turner, a Democratic congressman from Texas, wants to make sure a believable, trustworthy individual handles the task. A national leader: "Someone the caliber of Walter Cronkite," Turner said. "A credible person."

THINK SOFTWARE IS THE ONLY Y2K problem? "Millennial cults, extremist groups and racial ideologies... are bringing their assorted baggage to the Y2K happening." That's Abraham H. Foreman, national director of the Anti-Defamation League (ADL), talking about the threat posed by various groups of wahoos and nutjobs. The ADL is working to alert police chiefs about these losers, a list of which makes the Shark shudder. Forewarned is forearmed. See www.adl.org.

Of course, you can read about the losers and nuts among vendors, bosses and users daily at computerworld.com/sharky. To share something juicy, let sharky@computerworld.com. If your item runs, you get a T-shirt from Le Boutique Sharkue.

The 5th Wave



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Abstract



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